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INDUSTRIAL PRODUCTIVITY IN GREAT BRITAIN AND THE UNITED STATES¹

SUMMARY

Sources and nature of the data used. The extent of the ground covered, 3.— Numerical comparisons for U. S. (1925) and U. K. (1924), 6. — Arrangement of data for comparison, 7. — Relative importance of chief industrial groups in the two countries, 10.— Variations in net outputs (and in aggregate wages) in relation to numbers occupied, 14.— Some explanations suggested, 15.— Contrast between the U. S. averages and the U. K. 16.— Question whether the larger U. S. figures should be interpreted in terms of higher prices or of greater volume of output, illustrated from various trades, 17.— Differences appear to reflect mainly volume of output, 25.— Movements between the years 1907 and 1924 of the British inquiries considered in relation to U. S. data for 1909 and 1925, 26.— Extension of this comparison to 1930 (U. K.) and 1929 (U. S.), 33.— Differences in time of the inquiries sufficient to account for the major part of the changes in the measure of relative magnitude of output per head, 34.— Some concluding reflections, 37.

The fact that there has been established in Great Britain a system of periodic measurement of output in manufacturing establishments the principles governing which are, in the main, similar to those applied in the United States Census of Manufactures, tempts the student of the reports issued on the two sides of the Atlantic to inquire what can be learned from a comparison of the particulars published. The years to which the American data apply have not, so far, been the same as the years selected for the British inquiries, and this circumstance may be an important obstacle in the way of carrying out the desired comparisons. Thus, the first Census

1. This paper presents in greater detail the matter of a lecture delivered at Harvard University in December, 1932.

of Production in the United Kingdom dealt with the year 1907, and the United States data for 1909, the nearest available date, may reflect industrial conditions which had been affected by the business crisis of 1907 sufficiently to invalidate, in part, many of the deductions that might otherwise be made from the recorded data. The second of the British series of censuses related to 1912, and the World War interrupted the final stages of collecting, examining and summarizing the particulars for that Census. Partial information only is available, and comparisons cannot extend over the whole field of industry. In any case, the United States data for comparison, being those for the year 1914, may have failed to represent normal conditions, in view of the war demand on the resources of a great neutral manufacturing country. After the War — during which the series of British inquiries was, naturally, interrupted — the reestablishment of the Census was not effected until 1924, to which year the third of the series relates. For comparison we have the results of the United States Census of Manufactures for 1925. The latest of the British Censuses, the fourth of the series, dealt with the year 1930, and the available material for comparison relates, in the case of the United States, to 1929. It may, perhaps, appear that a six-year interval would be better for comparative purposes, and that either the American data for 1923 should be used for the earlier comparison or those for 1931 for the later. As the 1931 data are not yet available, even in the preliminary form in which the British particulars for 1930 are at present accessible to the public, the selection of 1923, rather than 1925, for comparison with the British data for 1924, would certainly have a formal advantage. It is, however, desirable to put as long an interval as may be feasible between the disturbed industrial conditions resulting from the feverish war activity and the dates selected for such inter-country comparisons, and it appeared, therefore, preferable to set the British data for 1924 over against the United States data for 1925, rather than those for 1923. Whether this selection has affected seriously what is set out below cannot be determined without an exhaustive examina-

tion of the particulars, and this has not been made so far.

The scope of the two inquiries is not in all respects the same. The British inquiry covered the building industry, which is not included in the American inquiry, and while coal mining is, in Great Britain, not only separately dealt with in official reports, but also included in the Census of Production, it is, in the United States, the subject of special reports, not in all respects readily comparable with the particulars normally reported for industries covered by the Census of Manufactures. The laundry trade finds a place in the reports of both countries, for 1924 and 1925 respectively, but, as comparisons for other years are made in what follows, the exclusion of the laundry trade throughout presents some advantages. In the United States Censuses of Manufactures, there are included certain industries which, in Great Britain, have been treated as accessory to trading rather than as manufacturing in character. The Slaughtering and Meat Packing Trade, the grading, roasting, cleaning and shelling of peanuts, and, in some years, the roasting and grinding of coffee, find a place in the Census of Manufactures of the United States, but the particulars have not been utilized in what follows, owing to the lack of the corresponding information — in the case of the Meat Packing Trade, the absence of the industry — in Great Britain.

In another direction, the British inquiry appears to be more comprehensive than the American inquiry, tho this may be, in part at least, rather appearance than reality. The group which, in the report on the Third Census, is presented under the heading "Public Utilities" covers not only the supply of gas, water and electricity, but certain state enterprises, such as the dockyards of the Admiralty and the printing carried on by the Stationery Office. The activities of municipal authorities in roadmaking and the maintenance of roads, bridges and the like, the similar work of harbor authorities and railway companies, as well as the repair and construction operations of railways, steam and electric, are also included. In the main the group is distinguished from industry in general by the fact that the "profit" of private enterprise is not

an element in the charges for goods supplied or services rendered, or in the amounts included in annual accounts of such enterprises as representing the value of their output. It has appeared desirable to omit this group from the comparison, owing to the lack of data to set over against the British figures, unless these were, as in the reports of the Census of 1907, distributed to the industries that dealt with similar activities carried on for profit. In the case of gas supply, and in that of the railway repair and construction shops, the latter course has been followed, but the remainder has been omitted as likely to prejudice the comparisons to be made. The absence of the necessary data for electric power production, that is, data giving the full range of particulars customary in the Census of Manufactures, has, in that case, compelled the omission of this very important activity from the inter-country comparisons.

To these omissions on both sides are added the industries engaged in the manufacture of alcoholic beverages which, in the circumstances of pre-war activity, would have been included. Even in those circumstances, something is gained from the exclusion of industries the taxation of the products of which introduced an element of non-comparability between them and the ordinary run of industry, whose products, by their sale, provide the means of meeting the cost of materials and services contributing directly to their fabrication, including a normal share of the expenses of maintaining the organization of government. The absence of these industries in the United States in 1925 and 1929 naturally requires the omission of data relating to them from the British aggregates prepared for comparative purposes.

While the omissions just passed in review are serious in extent, they leave a sufficient, and sufficiently distributed, mass of industrial operations to anticipate that the averages that are calculated will have a representative character. The persons engaged in the British industries used for the comparison totalled (taking the monthly average for the year) about 5,549,000 out of 7,892,000 covered in the official report

on the 1924 Census, while only about 300,000 of the 9,858,000 shown in the official reports on the Census of Manufactures in the United States in 1925 are excluded from the comparative tables. The numbers for the United Kingdom amount to about 1 in 8 of the population of the country, and those for the United States to about 1 in 12 of their total population. Of the populations gainfully occupied, these totals form, of course, a much higher proportion in each case than the relatively small percentages just named appear, at the first glance, to suggest. Roughly about 27½ per cent and 21 per cent, respectively, of the total occupied populations are represented in the particulars to be compared. How the proportions of the two sexes stand cannot be stated for lack of the sex particulars in the American data. The British data show that well over a third of the aggregate number employed in the industries to be compared were females. This is an important point in reference to such matters as average wages in different industries, since a low average wage may be mainly due to a large proportion of female labor in the industry concerned. If conditions are parallel in the two countries, comparison is not hampered, but without the means of judging the relative proportions of the two sexes employed in the two countries in a given industrial group, comparisons must be made with some hesitation where efficiency or earnings are concerned.

The tables on the following pages summarize certain of the data for the various industrial groups.

Table A gives, for each of thirteen groups of trades, the aggregate number of operatives employed in the Census year concerned, and the aggregate number of persons directly engaged in these trades, including clerical, administrative and technical staff as well as operatives. The aggregate of the mechanical horse power is also shown for each group and the aggregate sum paid in wages in the Census year. In addition, columns headed "Net Output" give figures obtained by deducting from the Gross Output returned the cost of materials purchased and used and also the sums shown in the United States reports under the heading "Contract Work,"

TABLE A

Class of Output	UNITED STATES, 1925					UNITED KINGDOM, 1924				
	Wage Earners Thousands '000,000 Omitted	Wages Bill '000,000 Omitted	Total Employed Thousands '000,000 Omitted	Net Output '000,000 Omitted	Mechani- cal Power '000,000 Omitted	Wage Earners Thousands '000,000 Omitted	Wages Bill '000,000 Omitted	Total Employed Thousands '000,000 Omitted	Net Output '000,000 Omitted	Mechani- cal Power '000,000 Omitted
Textiles.....	1,163.1	1,118.5	1,239.5	2,197.3	3,892.1	1,208.1	552	1,274.5	1,088.8	2,768.2
Clothing.....	748.5	865.1	867.4	1,935.5	332.8	489.6	235	560.2	431.4	123.8
Leather.....	83.4	104.1	95.4	246.7	240.2	48.8	28	56.1	62.4	78.4
Paper and Printing ..	559.0	829.5	755.6	2,274.4	3,086.5	308.9	209	367.2	476.1	491.5
Lumber and Timber ..	922.6	988.7	1,031.0	1,977.3	3,484.9	147.4	93	173.1	160.5	264.1
Pottery, Glass and Building Materials..	372.1	491.2	421.4	1,124.1	2,523.6	263.7	166	286.3	288.8	562.8
Chemicals, Dyes, Drugs, Oils, etc....	363.4	483.8	469.3	2,137.5	2,806.1	260.7	170	317.8	523.8	1,186.1
Iron and Steel	923.9	1,375.8	1,050.3	2,945.2	7,608.9	500.0	332	557.8	536.0	2,752.2
Engineering and Shipbuilding	935.2	1,335.1	1,129.3	3,211.4	3,098.0	637.8	385	741.2	693.6	1,496.8
Vehicles	960.2	1,494.5	1,059.1	2,697.1	2,457.9	471.9	305	522.3	503.1	657.1
Non-Ferrous Metals ..	213.7	299.6	248.5	697.9	1,049.6	105.8	61	123.2	128.2	268.9
Miscellaneous	323.4	414.9	381.4	1,130.5	986.5	121.7	72	147.6	167.0	208.2
Food and Tobacco ..	675.6	747.3	826.0	2,955.4	3,508.2	345.1	195	421.3	704.2	386.8
All Groups	8,244.1	10,548.1	9,574.2	25,530.3	35,075.3	4,909.5	2,803	5,548.6	5,763.9	11,244.9

* The particulars shown in this column are derived from an inquiry the completeness of which varied considerably from trade to trade. About 60 per cent of the total operatives employed were covered, taking all groups together. The figures given are, of necessity, estimates only.
† In these columns, British currency has been converted to United States dollars at the rate corresponding to the gold par.

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TABLE B

Class of Output	NET OUTPUT AVERAGE PER HEAD		WAGES AVERAGE PER HEAD		U. S. FIGURES AS MULTIPLES OF U. K. FIGURES		PERSONS EMPLOYED [§]	
	U. K.* 1924 \$	U. S. 1925 \$	U. K.* 1924 \$	U. S. 1925 \$	Net Output per Head*	Wages per Head*	U. S. if Divided by Groups in U. K. Pro- portions Thousands	U. K. if Divided by Groups in U. S. Pro- portions Thousands
Textiles.....	777	1,773	415	962	2.28	2.32	2,199.3	718.4
Clothing.....	700	2,231	436	1,156	3.19	2.65	966.7	502.7
Leather.....	1,012	2,587	521	1,248	2.56	2.39	96.8	55.3
Paper and Printing.....	1,179	3,010	615	1,484	2.55	2.41	633.6	437.9
Lumber and Timber.....	843	1,918	574	1,072	2.28	1.87	298.7	597.4
Pottery, Glass and Building Materials.....	917	2,668	572	1,320	2.91	2.30	494.0	244.2
Chemicals, Dyes, Drugs, Oils, etc.....	1,498	4,555	593	1,331	3.04	2.25	548.4	272.0
Iron and Steel.....	874	2,804	604	1,489	3.21	2.47	962.4	608.8
Engineering and Shipbuilding.....	851	2,842	549	1,428	3.34	2.60	1,278.7	654.5
Vehicles.....	875	2,547	588	1,556	2.91	2.65	901.3	613.7
Non-Ferrous Metals.....	946	2,808	524	1,402	2.97	2.68	212.6	144.0
Miscellaneous.....	1,028	2,964	538	1,283	2.88	2.38	254.8	221.0
Food and Tobacco.....	1,519	3,578	514	1,106	2.86	2.15	726.9	478.7
All Groups.....	944	2,666	519	1,280	2.82	2.47	9,574.2	5,548.6

* The figures in these columns have been calculated after making allowance for the depreciation of the paper pound relative to gold during the period concerned. (Cf. P. 9 below.) Regarding the particulars of wages in the U. K. cf. footnote to Table A.

§ For the actual distributions, cf. Table A.

so as to correspond with the British practice of deducting the amounts paid for "Work Given Out" to other firms, and thus avoiding possible duplication. In the preliminary reports on the 1929 Census in the United States, the figures given under the caption "Value added by manufacture" have, over a large part of the field, been obtained by deducting Contract Work as well as Cost of Materials from the Gross Value of the Output. In the tables here given, a uniform practice has been followed in dealing with the figures for 1925. In considering the 1929 Census results later, that course cannot be followed, as the material available to the writer is that contained in the preliminary reports, for which he is indebted to the Office of the Census. For 1925, however, the complete particulars are published and have been utilized. To avoid confusion, the term "Net Output," used in the British reports, is employed, so that the differences between the results presented and those that appear under "Value added by Manufacture" in United States official reports may not be misunderstood.

The data relating to wages in the United Kingdom are based on results of a voluntary inquiry, carried out by the Ministry of Labour for the year 1924. The Census of Production reports furnish summaries of the information trade by trade but, as the voluntary nature of the inquiry had as a result a varying degree of abstention on the part of employers, the particulars deduced, and stated in the tables given here, may probably vary in their representative character from industry to industry. No official statement for aggregate wages, trade by trade, is available. It appeared, however, desirable to present, for comparison, such particulars as might be reasonably deduced from the published information. They are stated in more rounded figures than other particulars in the tables.

A difficulty is presented, in treating the money totals for the different trades, by the fluctuations in the rate of exchange between dollars and pounds during the Census year 1924. It is to be remembered that returns were, in not a few cases, made and accepted for business years which differed

from the calendar year 1924, and might have begun as early as July, 1923, or ended as late as June, 1925. Even if a formal average of exchange quotations for the year 1924 could be considered as appropriate to summaries of events taking place in that year, the fluctuations of the exchange during the first half of 1925 and the second half of 1923 cannot be left out of account. The second of the tables (B) has been prepared from data in which a premium on gold of roughly 10 per cent is assumed, while the figures of money in the first table (A) make no allowance for a gold premium. In this way it will be possible to apply an hypothesis as to the appropriate figure of depreciation of sterling other than that made in the second table, should any reader desire to do so. The dominant period covered by the returns may, it is to be remembered, be different for different industrial groups.

The figures of mechanical power relate to the horsepower of prime movers at the works to which the returns relate, together with the horsepower of electric motors operated by purchased electric energy.

In forming the various groups distinguished in the table, the classification adopted has been based on British rather than American practice, not only because the writer is more familiar with the former than with the latter, but also because, the degree of detail in which the census results are published being greater for the United States Census than for that of the United Kingdom, it is possible to construct groups of more nearly identical content by following the British practice than by attempting to rearrange the British data according to the classifications used in the United States. The titles of the groups indicate their general content, and further details may be found in the Census of Production Supplement to the Board of Trade Journal for February 16, 1933. The exclusions to which reference was made earlier have made it desirable to deviate in a very small number of cases from the official British practice (which is now not identical with that of the published reports on the censuses of 1907 and of 1924), the cases of greatest importance for present purposes being those connected with the distillation of coal. Gas pro-

duction, as already stated, has been included in the material presented in this paper, and, public utilities generally being excluded, gas making has been grouped with the chemical trades. The making of foundry and furnace coke, with its associated "by-product" industry, has been included in the same group and not in the sixth of the groups of our tables, as prescribed in the official British plan. The United States data have been grouped so as to form aggregates of similar content, so far as appears possible, to those used for the data relating to the United Kingdom. It may be mentioned that the figures relating to Railway Companies' Repair Shops have been included in the group entitled "Vehicles," where they appeared to be more appropriately placed than in any other of the groups specified. It might be preferable to increase the number of groups or, on the other hand, to concentrate the data into a smaller number of groups. There is nothing sacred about the precise grouping adopted, but it is believed that it presents a certain convenience. It should, perhaps, be mentioned that "Boots and Shoes" have been regarded as "Clothing" and not as, primarily, products of the "Leather" group of trades, and that linoleum and oilcloth, and also rubber, have been included in the indefinite "Miscellaneous" group. This group has, with one exception, the largest excess of importance in the American, as compared with the British, results.

Table B contains various data which may assist in the comparison of the results for the two countries, and to these reference will be made as occasion requires. Perhaps the most important of the points to which attention may be directed is the different structure of industry in the two countries. The strongest contrasts are found in the relative importance of the Textile and Timber groups in the two countries. The relative abundance of timber on the North American continent contrasts strongly with the position in Great Britain. As is shown in the last columns of our second table, if the aggregate of persons employed in the United States in the industries covered by the tables were divided among those industries in the proportions shown by the

British data, the Textile group would be increased so as to show 2,200,000 persons employed instead of 1,240,000 and the Timber group would be reduced from 1,000,000 persons to 300,000 persons. On the other hand, if the United Kingdom total were divided among our groups in the proportions of the United States figures of persons employed, the Textile group would be reduced from nearly 1,300,000 to little over 700,000 persons employed, while the Timber group would be increased from about 170,000 to practically 600,000. Compared with these changes, the variations in the rest of the table, interesting and important as they are, are relatively small. In any aggregate, or average, presentation of results, these two groups must, surely, have an outstanding effect on the character of the results reached. The average net output per head, and the average wages per operative employed, were lower for these two groups than for any of the other eleven in the case of the United States. In the United Kingdom, both industries show rates of net output much below the average, and textiles had the lowest average wage of any group, while the small numbers employed in the "Timber" group rendered its wages figure of comparatively small importance in the formation of the general average. In spite of these facts, however, the trades in question did not by any means influence unduly the general averages, or render them seriously lacking in representative quality.

Leaving aside these two groups and the miscellaneous group, the greatest relative excess, measuring by numbers employed, of importance of industries in the United States as compared with the United Kingdom was found in the Paper (including printing) group. In this group, nearly 8 per cent of the persons covered by our tables were found in the case of the United States, and about $6\frac{1}{2}$ per cent in the case of the United Kingdom, a relative excess of nearly 23 per cent. The "net output" was, however, in the former case, under 9 per cent of the aggregate for all the industries surveyed, and somewhat in excess of 8 per cent in the latter. This group of trades, in both countries, was third in the order of magnitude of the "net output per head." The "wages per

head" figure for this group, exceeded in two other groups in the United States, was exceeded in no other group in the United Kingdom, while the ratio of money wages per head in the United States to that in the United Kingdom was only a little below that of all groups together. It should be mentioned that the figures given do not include those for publishers who do no printing, since to retain them in the United States figures would reduce comparability, and figures enabling them to be excluded are provided.

Proceeding in the enumeration of contrasts in relative importance, the Vehicles and the Non-Ferrous Metals group showed a relative excess of numbers, in the United States, in the proportion of about 7 to 6. The former showed the highest aggregate of wages paid, and the highest average wage, of any of our United States groups. Eleven per cent of all persons employed covered in our table were found in this group in the United States, as against 9.4 per cent in the United Kingdom. The "net output per head" was somewhat below the average in both cases. A somewhat notable point is that, in spite of the premier position of the American industry in regard to its average wage, the proportion of the average wage in the United Kingdom to that in the United States was above the like proportion for all the trades in the table.

The relative importance of non-ferrous metals in the United States needs no explanation, and the fact that the absolute numbers employed were only just in excess of twice the United Kingdom figure is to be taken in relation to the proportion for all trades of $17\frac{1}{4}$ to 10. The average addition to the value of the materials used in the course of the industrial processes carried on was relatively high, being almost three times as much per person employed in the United States as in the United Kingdom. In the latter country the net output per head in this industrial group was little over that for all industries together, while in the United States it was more than 5 per cent in excess of the general average.

Of divergent degrees of relative importance where the United Kingdom registers an excess over the United States, other than the Textile Trades, the Chemical group of trades

stands first and, in its degree of relative predominance, is comparable with the cases of Vehicles and Non-Ferrous Metals where the excess was in the opposite sense. This group in the United States occupied just short of 5 per cent of the persons covered by the table, and almost $5\frac{3}{4}$ per cent in the United Kingdom. The average "net output per head" in both countries was exceptionally high in the Chemical group of trades. In the United States the excess over the next highest group, the Food trades, was between 25 and 30 per cent, and the excess over the third highest group, the Paper and Printing group, exceeded 50 per cent. In the United Kingdom the Food group showed a somewhat higher figure than the Chemicals group and over 25 per cent excess over the Paper group.

In the Iron and Steel, Engineering and Vehicles groups there is found a complex of industries the precise allocation of which to either of two out of the three groups is, in a number of cases, by no means clearly indicated. Many enterprises carry on operations belonging to two, or to all three groups, and the separated figures do not connote such clear lines of division as in the case of many other industries. For some purposes the three groups may be considered together, and it is interesting to note that the aggregate of the numbers employed in the composite thus formed amounted in the United Kingdom to 32 per cent of the aggregate dealt with in the tables given above, and in the United States to 34 per cent. In the United States this triple group of trades accounted for nearly 35 per cent of the entire net output of all the trades dealt with, while in the United Kingdom about $29\frac{1}{2}$ per cent of the aggregate net output was shown for these three groups. It is thus clear that the Iron and Steel Trades in the more comprehensive sense took approximately the same dominant position in the industrial life of the two countries. The dominance was measurably greater in the case of the United States, but not in a degree which provides a strong contrast with the British position.

The Food and Tobacco group accounted for about $8\frac{2}{3}$ per cent of the total employed (of our table) in the United States

and about $7\frac{1}{2}$ per cent in the United Kingdom. About 12 per cent of the aggregate net output in the United Kingdom and somewhat less in the United States, is shown for this group. It may be noted that the figures for the United Kingdom do not include such tax charges as were included in the figures as returned. As shown in the British reports, allowance can be made for such inclusion, and that has been done in preparing our tables.

It is interesting to note that, taking Food and Clothing together, about $17\frac{1}{2}$ per cent of the aggregates of employed shown in each of the two countries are accounted for, while for "net output," the United States shows 19 per cent of the aggregate, the United Kingdom about 20 per cent in respect of Food and Clothing.

Among the outstanding features of such comparisons of different industries as has been attempted in our tables, is the wide variation in the "net output per head," and some explanation seems to be required of this wide variation. The groups which show the extreme figures are not small groups. In the United Kingdom the group with the largest number of employed shows an average net output lower than all but one of the rest of the groups, and the corresponding group in the United States has the smallest average net output of all the groups. At the other extreme, the groups concerned with chemical products, food products and paper and printing, all important groups, stand highest in the order of "net output per head." If we consider the wages totals in relation to the net output, it is clear that high wages, tho present and important, are far from explaining the contrasts of the large average net outputs as against the small. The average net output of the three groups with the highest averages exceeded the average for the remaining United States groups by nearly 50 per cent, just under 3,600 dollars for the former, slightly over 2,400 for the latter. The average wage was only slightly different for these two divisions of the aggregate, about 1,290 dollars for the high net outputs, a little under 1,280 dollars for the remainder. For the United Kingdom the contrast was equally striking. For the two groups the average net outputs

were (Table A conversions at par) 1,540 dollars and 914 dollars, an even greater relative difference than in the United States data. The wages figures were not so nearly equal, namely \$628 and \$558, but the larger relative difference of net outputs may be taken into account in considering this comparison. The contrast is substantially similar for the two countries, the ratio of net output to wages in both cases being about half as great again in the first group of industries as in the second.

Can a reason be indicated for so wide a contrast? I venture to think that such a reason, or reasons, can be suggested. The position may be most clearly stated in relation to the Paper and Printing group. In the printing and publishing trades, giving employment to more than one-half of the persons employed in the group in the United States and to two-thirds of those in the United Kingdom, newspapers and magazines have a place of great importance. The staffs whose numbers are reported in connection with the Census do not exhaust those who are devoting a large part, or the whole, of their time to the service of the publications concerned. To attempt any exhaustive indication of workers remunerated from the net output is unnecessary, but reference to news agencies will be a sufficient indication of persons on whose services the newspapers depend, but whose staffs are not included in the figures of our tables. Writers for magazines are, mainly at least, also excluded from the "persons employed" as reported for Census purposes, and authors of books, the printing and publication of which contributes to the figures reported, receive payment from the net output, but are not, in general, on the rolls to which the "persons employed" totals relate. The net output, if divided among all such contributors to its creation, might lose the striking contrast to which attention is directed above. To obtain the information by which such an inclusion could be effected would require an extension of the inquiries of the Census offices that would not be easy to effect, and which I have no thought of suggesting.

The principle which I have tried to indicate may apply to the other trades, tho circumstances will be different. In the

food trades, and in at least some sections of the Chemicals group, the organization of the distribution of goods produced, involving in some cases extensive, and expensive, advertising, calls for the services of agencies not directly controlled by the proprietors of manufacturing plants. The staffs employed are none the less remunerated out of the net outputs of the trades served. In addition, the constant adaptation of plant in view of changing methods of operation, and the replacement of obsolescent plant, calls for important expenditures, provision for which must be made out of the "net output."

In such ways as just indicated, the relatively large net outputs of some trades can be understood without a resort to a doctrine of exploitation of the operative staff directly concerned with the manufacturing operations.

THE CONTRAST BETWEEN UNITED STATES AND UNITED KINGDOM AVERAGES

Throughout the consideration of the two tables on pages 6 and 7 the very marked difference in the magnitude of the averages expressed in money — net outputs and wages — according as they related to the United States or to the United Kingdom, forces itself on the attention. Not only was the total of persons employed greater in the United States in the proportion of about $17\frac{1}{4}$ to 10 than in the United Kingdom, corresponding to the even larger contrast in population in the two countries, but the average wages in the United States exceeded the average in the United Kingdom in the proportion of nearly 25 to 10 and the average net output was greater in the proportion of about 28 to 10. The proportions vary from group to group and we should find further variations if we could give sufficient space and patience to examine the separate elements from which the groups are built up — elements not always separately comparable, even the aggregates prepared from them have real comparability. While, then, considerable variations exist, corresponding to differences in industrial conditions and natural resources in the two countries, they do not extend over a very wide range. The second of our tables (Table B)

has been prepared with a view to giving definite expression to this feature. It will be observed that, after taking account of the discount existing, in and about 1924, in the value of the paper pound as compared with the gold sovereign, the average wage in the different groups was higher in the United States than in the United Kingdom in a proportion varying between about 187 to 100 and 268 to 100, the higher ratio being less than $1\frac{1}{2}$ times the lower. This cannot be called a very wide range. In the case of the "net output per head," the proportionate excess, expressed in money, in the United States ranged from about 228 to 100 to about 334 to 100, again a range the higher limit of which is less than $1\frac{1}{2}$ times the lower. Throughout the range the contrast is found, a little more or a little less, and the arithmetical calculation of a mean is no mere formal averaging process. The fundamental contrast is not accidental, not consequent on the existence of a special class of product here and there, but the expression of a real general difference in the magnitudes compared.

Does the contrast express a difference in the prices ruling in the two countries, or is it the expression of differences in the productive capacity of the industrial organization in the two countries? This question cannot be exhaustively examined, since even where units of quantity are recorded, as well as the values of the goods produced, variations in the type of goods produced in works engaged in the same trade in the two countries may contribute to the contrast of values produced. It is, however, possible to select a number of illustrations from different lines of production, by comparing which we may determine whether price differences are or are not an important element in producing a net output per head exceeding that of the United Kingdom on the average in the proportion of nearly 3 to 1.

We may take, as a first example, the case of wheat flour. The average valuation of the wheat flour made in United States grain mills in 1925 was \$91 per long ton, while in the United Kingdom in the censal year 1924 the average, when converted to dollars at par, represented about \$75. Flour prices in the United States were, however, higher in 1925

than in 1924, reported differences amounting to 20 to 30 per cent of 1925 prices for different grades and localities. It would, therefore, appear that there was no definite excess of average value in the United States, even if account be taken of the premium on gold.

The output of flour was approximately $2\frac{1}{2}$ times as great in the United States in 1925 as in the United Kingdom in 1924, a situation corresponding to the larger population and important export trade. The average quantity of flour made for each person employed was, in the United States in 1925, about 200 tons, and in the United Kingdom in 1924 about 115 tons. It is germane to the comparison to note that wheat flour represented about two-thirds of the value of the output of the British grain mills and approximately 70 per cent of the output of the United States mills. The "net output per head" in the grain milling trade was \$3,707 in the United States and \$1,635 at par or about \$1,500 at the current value of dollars in terms of sterling, in the United Kingdom in 1924. It may be mentioned that the mechanical power equipment of the mills provided more than 14 h.p. for each person employed in United States mills and little over $5\frac{1}{2}$ h.p. for each person employed in British mills.

As some indication of the comparative position in textile manufacturing in the United Kingdom and the United States, data relating to cotton yarn may be cited. The separation of spinning from weaving processes, which has permitted of separate records for the two stages of manufacture in the United Kingdom, is not, in the United States, so generally met with. In comparing the yarn outputs, the important differences in value of yarn of different degrees of fineness cannot by any means be ignored, and the information available does not extend to the separation of different ranges of counts in the record of yarn production in the United States. It may be of some importance, nevertheless, to note that the value of the yarn made for sale averaged, in 1925, 50 cents per lb. in the United States mills, and over 62 cents per lb. in New England mills taken separately. If thread be included with yarn, the average for the country as a whole becomes

56 cents per lb. Recorded price quotations of cotton yarns were notably higher in 1924, in the United States, than in 1925. In the United Kingdom the average reported for 1924 was 60 cents per lb. with sterling taken at its par value, or about $54\frac{1}{2}$ cents at current rates of exchange. For counts not exceeding 40's the average value returned was approximately 50 cents, converting at the gold par, or, say, $45\frac{1}{2}$ cents gold. These figures include doubled yarns and thread, the separate reporting of the latter not being consistent with the secrecy of information relating to individual firms. For all gray, unbleached, cotton piece goods made for sale in 1924 in the United Kingdom, the average selling value per lb. weight was reported as $67\frac{1}{2}$ cents, taking sterling at par, or, allowing for the gold premium, something less than $61\frac{1}{2}$ cents, gold. In the United States in 1925, the returns of the Census show an average value of slightly over 60 cents per lb. The two aggregates are unlikely to be comparable in grade and in fineness, and the closeness of the figures for the two countries may be rather a curiosity than an instructive record, especially in view of the fact that quotations for specific fabrics of cotton sold in the United States were higher in 1924 than in 1925 by amounts ranging to as high as 10 per cent, tho generally less than that figure. Further, the Census values in the United States appear to relate, in many cases, to goods bleached, dyed or finished, and not, as in the case of the British return used, to piece goods in the gray. The inclusion of charges for finishing cotton goods might add, on the average, between 15 and 20 per cent to the value of the output taken at the gray stage.

Vague as is the comparison of the data, in view of the uncertainty as to the degree of real similarity of the goods compared, having regard to the fact that the net output amounted to about 1,374 dollars per head of persons employed in the cotton industry in the United States and to about 700 dollars, gold, per head in the United Kingdom, the data appear to indicate that the large difference between these last figures cannot, in the main, be traced to a higher range of prices for

similar goods in the United States as compared with Great Britain.

A different kind of illustration is furnished from the "Coke and By-Products" industry. In this industry about two-thirds of the aggregate value of the output was, in each of the two countries, represented by the value of the coke made for sale. The average value of that coke was \$5.66 in the United States and \$5.75, gold, in the United Kingdom. The quantity of coke produced amounted to 1920 tons per person employed in the industry in the United States and to 630 tons in the United Kingdom. The comparative magnitude of these figures on the one hand, and of the figures of average net output, \$3,865 and \$1,194, gold, on the other, presses itself on the attention. The figures of mechanical power available, nearer 16 than 15 horsepower per person employed in the United States and only a moderate fraction over 5 horsepower per person in the United Kingdom, are similarly striking, the proportion of, roughly, 3 to 1, seen in the two preceding pairs of figures, being repeated.

From the Iron and Steel trade, the smelting of pig iron may furnish a useful comparison between conditions in America and Great Britain. The quantity of pig iron produced in 1925 in the United States was about 36½ million tons, or well over five times the British Census figure of 7,159,000 tons. The average values were \$20.41 and a few cents in excess of \$20 (gold) respectively. The persons employed in the industry were more numerous in the United States, but only by slightly less than 1 in 5. Thus the average output per person employed amounted to 1,150 tons in the United States and to 265 tons in Great Britain. The relation of the average net output in 1925 in the United States, \$4,665, to the \$845 gold, the average net output in Great Britain in 1924, would appear to be a matter of quantity of output rather than of comparative prices on the two sides of the Atlantic. It should be added that pig iron price quotations were slightly, but only slightly, higher in the United States in 1924 than in 1925. That the mechanical power available was recorded as about 10 h.p. per person employed

in Great Britain and 44 h.p. per person employed in the United States may have an important relation to the result: in each case the mechanical power per 1,000 tons of iron was, in whole numbers, 38 h.p. The average wages per ton of iron produced in Great Britain amounted to 11s/5d or \$2.78 at par, equivalent to about \$2.50 gold. Wages in the United States amounted to slightly less than \$1.25 per ton of iron produced, but in money amount per operative they were double the British average.

From iron we pass to cement, the production of which employed more than three times as many persons in the United States in 1925 as in the United Kingdom in 1924. The quantities of cement produced were in the ratio of nearly 9 to 1. The average values reported were \$10.83 per ton in the United States and \$9.42 (gold) in the United Kingdom. The tonnages made per person employed were 602 and 236 respectively. The average net outputs are calculated as \$4,106 per head and \$1,526 per head and the mechanical power available as slightly in excess of 19 h.p. per head and 8 h.p. per head in the United States and the United Kingdom respectively: per 1,000 tons of cement the power differed but little, being 32 h.p. and 34 h.p. respectively. Wages in the United States, at an average of \$1,400 per operative, represented somewhat less than 2 dollars per ton, and in the United Kingdom at £152 per operative amounted to approximately 12 shillings, or about \$2.65, per ton of cement produced.

From a different group of industries a quantitative comparison of output, covering the major part of the output value of the trade concerned, may be based on the data published for the Soap trade. In the United Kingdom the manufacture of candles is included in the returns for the Soap trade, and is relatively more important than in the United States, where it is dealt with separately, in a somewhat skeleton fashion. Of the total value of products of the Soap and Candle trade in the United Kingdom, products other than soap accounted for 32 per cent, while in the United States products other than soap, reported for the Soap trade, ac-

counted for only 14 per cent of the aggregate value reported. It would appear that soap making employed a larger number of persons in the United Kingdom in 1924 than in the United States in 1925, the aggregates for the trades being 28.909 and 20.102 respectively. The average value returned for soap was at the rate of \$9.22 per cwt. in the United States in 1925 and at the rate of \$10.50 (gold) in the United Kingdom. The difference is not beyond what could be accounted for by the different proportions of the various kinds of soap, if the descriptions could be taken to correspond closely. This consideration will lead us to treat as not more than roughly comparable the average amounts of soap produced per person employed. These were, 1,300 cwts. in the United States in 1925 and 313 cwts. in the United Kingdom in 1924. As the divisor in the latter case, the aggregate of all employed in the trade, includes a larger proportion engaged in making candles, perfumery, etc., than may be considered as engaged in producing the non-soap items in the United States total output for the trade, the comparison should be modified from that of 1,300 cwts. with 313 cwts. to one of 1,300 cwts. with something like 375 or 385 cwts. if it is to express the proportions of physical output per head. Even in that case the contrast is greater than that between the average net outputs, namely \$4,650 in the United States and \$1,850 (gold) in the United Kingdom, or about 5 to 2. The mechanical power available is reported as about 283 h.p. per 100 persons employed in the Soap trade in the United States and about 117 h.p. per 100 persons employed in the Soap and Candle trades of the United Kingdom.

From Soap we turn to Boots and Shoes, and here are met by the difficulty of comparison of aggregates, whose elements are not closely equivalent, which showed itself in reference to soaps of different kinds intended for different purposes. An aggregate of boots, shoes, and slippers, without distinction of those for men's use and for women, for boys, for girls and for infants, may be far from comparable when the needs of different countries are concerned. So far as it may be used, the average values per dozen pairs of footwear

yield for comparison the figures of \$34.32 for the United States and about \$21.20 (gold) for the United Kingdom. For the United Kingdom, the figure for boots and shoes, wholly or mainly of leather, is \$25.40 (gold), the corresponding figure for the United States not being available for 1925. The proportion of footwear other than boots and shoes of leather was much smaller for the United States than for the United Kingdom. The production per person employed works out at about 1,415 pairs of leather boots and shoes in the United States, and 810 pairs in the United Kingdom, subject to the consideration that a relatively larger output of other kinds of footwear is to be taken into account in the latter case. The net outputs were \$1,998 per person employed in the United States and \$750 (gold) in the United Kingdom. The mechanical power available amounted, for each hundred persons employed, to about 61 h.p. in the United States and to 43 h.p. in the United Kingdom. The larger volume of production per head, when account is taken of the footwear other than that of leather which is recorded in the United Kingdom reports, is in closer proportion to the horsepower provided than appears from the bare figures.

A case only a little less confused by the variety of products covered by the aggregate of units of output is that of paper manufacture. There is, further, a difference between the kind of work covered by the aggregate figures for the two countries, since the manufacture of wood pulp affects largely the United States aggregates, while the practice of the British paper makers was to purchase such pulp, the supplies being imported. Thus the average output of 25 tons per person employed in the British mills and of 63 tons per person in the United States mills understates the contrast which really exists.

In the output recorded for the British paper mills in 1924 less than one-twelfth of the weight was in respect of boards, while in the United States aggregate nearly 35 per cent of the weight recorded was in respect of boards. The average recorded output may, perhaps, be better stated as 39 tons of paper with 24 tons of board in the United States and 23 tons

of paper with 2 tons of board in the United Kingdom. Printing paper accounted for over 60 per cent of the total tonnage (68 per cent of the paper alone) in the United Kingdom in 1924, while in the United States, in 1925, printing paper accounted for somewhat less than one-third of the total tonnage (slightly more than one-half of the paper alone). In each case newsprint made up over a half of the printing paper, but was relatively more dominant in the United Kingdom, where 61 per cent of the printing paper made was newsprint, than in the United States, where the proportion was between 52 and 53 per cent.

The price comparison in this case shows a rather varying relation between the two countries, the grades of paper produced being, presumably, different, and the proportions of different classes of paper also, as the figures show, different. For all paper produced, the average value shown in the records of the 1925 Census in the United States was about \$127, the United Kingdom average being \$120 (gold). For all printing paper the averages were \$108.70 and \$97.80 while for newsprint alone they were \$76 and \$81, the British average being the higher. The differences of prices do little to explain the contrast of net output between \$2,690 per person employed in the United States and \$1,120 (gold) per person in the United Kingdom, or of the average wages of approximately \$1,300 in the United States and \$540 (gold) in the United Kingdom. The mechanical power available amounted in the United Kingdom to about $5\frac{1}{2}$ h.p. per person employed, and in the United States to about 18 h.p. per person. For the mills producing paper only, and not pulp, the average was about 14 h.p. per operative, or, say, about $12\frac{1}{2}$ h.p. per head of all employed, and this figure may provide a better comparison with British conditions than the higher figure resulting from the inclusion of the pulp-making operations, requiring a much greater use of power. The mills making paper only gave employment to just over one-half the operatives reported for the Paper and Pulp industry as a whole, and thus provide a broad basis for comparison.

One further industry will be mentioned in this series of

comparisons, and attention will be given to the price comparison only. The manufacture of butter and cheese in creameries is on a very much smaller scale in Great Britain than in the United States, but the basis of comparison appears to be satisfactory. The average value of creamery butter shown by the United States Census report for 1925 was 43.7 cents per lb., and the corresponding figure for the United Kingdom in 1924 was 42.8 cents, at par of exchange, per lb. More than half the difference between the British price in 1924, expressed without allowing for currency depreciation, and its gold equivalent, about 39 cents, is required to offset the higher level of butter prices in the United States in 1925 than in 1924, as shown by published quotations for different centers. In some cases the whole of the difference, and more, would be required.

In the case of cheese, the United States report for 1925 shows an average of 21.6 cents per lb. for hard cheese, and the United Kingdom report for 1924 an average of 20.2 cents per lb. at par of exchange, or about 18.3 cents gold. It would appear from the quotations in United States official publications that prices of cheese in 1924 were so much lower than in 1925 that the difference between the figures of 21.6 and 18.3 given above is effectively accounted for by the difference between conditions in 1925 and in 1924 in the United States. It may be added that the net output per head shown for the Butter and Cheese industries (including condensed milk) in the Census reports was \$3,190 for the United States and about \$1,700 (gold) for the United Kingdom.

Taken as a whole, the illustrations selected from the reports and set out in the preceding pages provide little reason for assigning to differences in price levels in the United States and in the United Kingdom the somewhat striking contrasts in wages per operative and in net output per person employed. They have been taken, of necessity, from industries in which quantity particulars as well as values were reported, and in which the major part of the output could be expressed with some appropriateness in terms of a single unit of quantity. It is, however, not obvious that the situation shown to exist in

the selected industries does not represent in kind, if not in precise degree, the general comparative situation in the industrial field as a whole.

It may be added that comparisons similar in effect to those made in the last ten pages could be repeated for the earlier Censuses (1907/1909) and for the more recent Censuses (1929/1930). Results generally similar would be shown, but to include the detail here would be tedious, without adding greatly to the weight of the evidence bearing on the point at issue.

COMPARATIVE PROGRESS IN TWENTY YEARS

One further section of the task of comparing the official records of industry, taken in the mass, in the two great English-speaking countries remains for consideration. We are interested to know if the contrasts noted in the situation in 1924-25 have been accentuated or diminished with the lapse of time and if the similarities are maintained or are diminished in degree. First we have to consider the comparison of post-war with pre-war figures in the two countries. The presentation of such figures for the selected pre-war dates as are shown in Table A for post-war dates would be a natural basis for such a comparison. It may be more convenient, however, and sufficient for the essential points, if the proportionate change in each of the two countries is shown in respect of the elements of greatest significance. As no data relating to wages in the several trades, of a character suitable for comparison with the aggregates of wages paid that appear in the United States reports, are available for the United Kingdom for the Census year 1907. Table C given below contains no figures relating to wages. The differing degrees of change in numbers employed are shown in the table, and, in considering the data for the United Kingdom, it is of some importance to remember that the territory now known under the name of the Irish Free State was included in the United Kingdom of 1907. The separation, in the detail of industrial groups shown in the table, of the figures relating to Southern Ireland in 1907 is not possible, and the necessary presence

TABLE C

Class of Output	TOTAL EMPLOYED		NET OUTPUT PER PERSON EMPLOYED		NET OUTPUT PER HEAD U. S. FIGURES AS MULTIPLES OF U. K. FIGURES	
	U. K. in 1924 (1907 = 100)	U. S. A. in 1925 (1909 = 100)	U. K. in 1924 (1907 = 100)	U. S. A. in 1925 (1909 = 100)	1908/1907	1925/1924
Textiles.....	101.5	128.0	207.8	236.6	2.00	2.28
Clothing.....	90.4	100.2	206.7	256.3	2.76	3.19
Leather.....	105.2	81.6	215.5	225.7	2.44	2.56
Paper and Printing.....	114.0	129.9	236.5	247.5	2.44	2.55
Lumber and Timber.....	90.3	95.5	188.7	240.3	1.79	2.28
Pottery, Glass and Building Materials.....	101.9	107.7	230.5	300.6	2.28	2.91
Chemicals, Dyes, Drugs, Oils, etc.....	125.1	146.2	165.2	247.9	2.00	3.04
Iron and Steel.....	106.4	170.2	175.8	238.1	2.37	3.21
Engineering and Shipbuilding.....	114.0	128.2	164.7	253.0	2.17	3.34
Vehicles.....	144.6	187.0	219.8	358.9	2.16	2.91
Non-Ferrous Metals.....	107.6	128.5	186.6	214.6	2.59	2.97
Miscellaneous.....	181.9	171.8	208.6	259.8	2.31	2.88
Food and Tobacco.....	124.3	121.7	271.0	280.3	2.28	2.36
All Groups.....	110.2	128.1	207.1	258.8	2.26	2.82

Note: The comparisons in the third and sixth columns of figures are with values in 1924 in gold, not in currency.

in 1907 and absence in 1924 of data covering that territory, affects the groups in different degrees. In the aggregate, somewhat over 4 per cent of the persons reported as employed in the industries covered by the Census in 1907 carried on their work in Ireland, and about 3 per cent of the aggregate net output was reported in respect of such work. For 1924, 157,000 persons were recorded as employed in Census industries in Northern Ireland, and the Census of Industrial Production taken in the Irish Free State in respect of 1926 recorded about 102,000 as employed, on the average of that year, in industry in Southern Ireland. Together these numbers fall short of the total of 291,000 recorded for Ireland at the 1907 Census, but they may provide some indication of the contributions to that total of the two divisions of the country, and, thus, of the extent to which the 1907 figures are affected for comparison with those for 1924 and later. So far as the aggregate of all trades is concerned, the change in the area covered accounts for but a small part of the contrasts to which attention has been called in the preceding pages.

A more important factor is the difference between the periods covered by the inquiries in America and in Britain. Until the autumn, 1907 was a year of great activity, and, tho the crisis of that autumn did not lead to a long continued depression, the year 1909 may well furnish a very different basis of comparison with post-war periods than the year 1907. Prices in the United States for metals and metal products, for fuel, for textile manufactures and clothing and for building materials were lower, in some of the groups markedly lower, in 1909 than in 1907, and tho foodstuffs and chemicals showed higher prices, the contrast between 1909 and 1925 may well have been more marked than that between 1907 and 1924, owing to the differences in the situation in the earlier years of the pairs compared. Some part of the relatively greater expansion in the Iron and Steel and Engineering trades in the United States as compared with the United Kingdom may quite well be traceable to this difference in the periods compared. How much importance should be attached to this question of dates it is difficult to determine. The

apparent increase in the figures which express the growth in relative magnitude of the average net output in the United States as compared with that in the United Kingdom may not, in fact, connote growth, but only the comparison of things which are unsuited for comparison. For that reason, I do not propose to treat the final columns of Table C as conclusive evidence of a real tendency to growth in the value of a year's effort of any given number of workers in the United States as compared with the United Kingdom, or, assuming that such a growth has occurred, as a measure of its extent.

Table C may have its greatest interest in its indications that, while changes in industrial structure are occurring in each of the two countries to which the table relates, there is a large degree of common movement of the different parts of each of the two structures, and between the two regarded as aggregates. The groups which have expanded more rapidly than industry in the aggregate are readily distinguishable. In the United Kingdom they were concerned with Vehicles, Chemicals, Food, Engineering and Paper and Printing. The Miscellaneous group cannot be assigned a definite significance in this connection, tho it would not be difficult to trace the expanding elements. The same groups, in a slightly different order, except that Iron and Steel replaces Engineering, and Food falls out, are those of expansion in excess of the average in the United States. The lines of division between some trades included in the Iron and Steel group and some that are assigned to the Engineering group are not everywhere easily maintained, and the exceptional growth in Iron and Steel while Engineering showed an average rate of growth may not be of real significance. The slight excess of expansion in the Non-Ferrous Metal trades over the average rate for all trades does not appear to call for special notice. The relatively decreased numbers employed in the Clothing Trades group is a feature in both the countries, and the decrease, in proportion to the movement in the mass examined, was even greater in the United States than in the United Kingdom. Whether the 1924 Census succeeded in securing a more complete record of the small firms in this group in the United Kingdom than was

secured for 1907, cannot be definitely determined. Owing to changes in industrial and social habits, it was a more exhaustive survey of the industry. The decrease in the relative importance of the Timber group in both countries, an even more marked feature than the relative decreases in the Clothing group, it will be sufficient to note. The exceptional position of the Timber group in the general comparison has received attention earlier.

The figures showing the nominal increases in net output per head are difficult of interpretation, as they reflect in the main the changes in the value of money over the period examined. As already noted, the fact that the year 1907, for a large part of its duration, was a time of relatively high prices and flourishing trade, may well account for a smaller proportionate advance in prices from 1907 to 1924 than from 1909 to 1925, without calling for explanation based on different degrees of industrial progress in the two countries. This relation of the comparisons to the position in the trade cycle of the years for which data are available may also have an important influence on the position, in the scale of advance, of the different industrial groups. But for this, various features of the figures in the third and fourth columns of Table C would call for special attention. Such features are the apparent lagging behind, in the British movement of net output, of Iron and Steel and Engineering (other than that concerned with transport by land and by air) and, perhaps even more remarkable, the "Chemical" groups. Textiles in the United States lagged behind the general movement, and the Paper group, which made a large relative advance in the United Kingdom, failed to attain the average movement in the United States. When the question of utilizing the particulars provided by industrial census inquiries in different countries, for the purpose of securing a measure of relative industrial efficiency in such countries, first engaged the attention of the present writer, the official report on the first British Census of Production had recently been issued in final form. From a more comprehensive collection of material than has been used on the present occasion, Table D was prepared. This

TABLE D

Table showing the average numbers employed and aggregate net output of trades in which the net output per head was between the specified limits in the United Kingdom (1907) and the United States (1909) respectively.

UNITED KINGDOM, 1907 (Excluding returns on a non-profit basis)			Group Number	UNITED STATES, 1909 (Manufactures only)		
Net Output per Head in the Trade	Average Numbers Employed	Aggregate Net Output		Average Numbers Employed	Aggregate Net Output	Net Output per Head in the Trade
Under £50	32,613	£000 954	I	44,524	£000 4,190	Under £100
£50 to £75	1,508,327	97,166	II	929,522	128,182	£100 to £150
£75 to £100	2,144,236	181,428	III	2,431,203	426,233	£150 to £200
£100 to £125	1,353,491	148,855	IV	2,461,783	549,991	£200 to £250
£125 to £150	915,291	116,495	V	1,084,156	296,240	£250 to £300
£150 to £200	280,295	48,693	VI	373,632	126,497	£300 to £400
£200 to £250	103,100	21,805	VII	229,554	102,415	£400 to £500
Over £250	141,441	61,037*	VIII	124,204	119,488†	Over £500
	6,478,794	676,433*	Totals	7,678,578	1,753,236†	

* This sum includes £15,291,000 in respect of excise duties on beer, sugar and glucose.

† This sum includes apparently about £41,000,000 in respect of inland revenue duties on distilled and malt liquors.

table includes, as will be seen from its footnotes, the manufacture of alcoholic beverages in both the countries concerned.

The purpose of Table D was to show the degree of similarity in the distribution of the industrially occupied persons in the two countries among industries of relatively high productivity and industries of relatively low productivity. The table was used in a course of Newmarch lectures at University College, London, only brief reports of which were published, and the subject dealt with appears to have remained untouched for some twenty years. The data from which the table was constructed were used in preparing a diagram which indicated a closer parallelism in the distributions than the table suggests. This is partly due to the fact that the groups are better adapted, as shown in the table, to a comparison of particulars of which the items of one series are approximately double the corresponding items in the other, than to the actual case in which a proportion of about $2\frac{1}{4}$ to 1, rather than 2 to 1, is found to exist.

The diagram in question is not reproduced here, nor is the form of comparison attempted for later years which commended itself for the 1907/1909 comparison. Already at that date the American figures were issued in greater detail, more numerous trade groups being distinguished, than was the case with the British figures. At later dates the degree of detail was increased in both cases, and examination of the resulting material made it doubtful whether the form of the distribution might not be affected seriously by the retention as undivided units, or the subdivision, of various large industrial aggregates for which figures were given. Some, if not all, of these aggregates result from the combination of sections of trade in which the relation of the aggregate net output to the numbers employed were widely different. In numerous cases in which more recent reports have presented such subdivision the prominence of certain groups in tables formed similarly to Table D has been notably modified by the breaking up of a single large unit. In the light of such facts, the form of the table — and of the diagram prepared to represent it — appeared to have a considerable arbitrary element, the

complete removal of which would require that the returns for every trade should be presented in groups corresponding to the analysis to be made of the aggregate figures. The unit available for the formation of the table should, in fact, be the single undertaking and not the assemblage of undertakings that makes up a trade for census purposes. Such data are not available and, tho their existence would make possible the study of some industrial problems of great interest and importance, it cannot be certain that the value of the results of such study would fully justify the cost of their preparation. In the present treatment of the subject, accordingly, a different presentation of the data has been adopted to bring out the fact that, in the two countries with which we are concerned, there is a large degree of similarity in the distribution, between its several subdivisions, of the persons employed in industry.

COMPARISON OF THE MORE RECENT DATA

In carrying the comparison of pre-war and post-war data, made in the preceding pages, to a further stage, the material available has to be modified. In passing from the data of 1907 to those of 1924, the connotation of the term "The United Kingdom" was modified, and geographically identical aggregates could not be compared. Happily, the effects on the comparisons to be made were generally not great. In comparing 1924 with 1930 another change in the data has to be noted, as the separate publication of the particulars relating to Northern Ireland in 1930 prevents the formation of some of the groups on a basis parallel with that used for 1924, since, for Northern Ireland separately, a comparatively large number of trades are excluded from individual presentation, on account of the small number of firms engaged in each of them. The comparative material for use for the period 1924-30 is thus material relating to Great Britain alone and, moreover, to firms in Great Britain employing more than 10 persons on the average. The 1924 basis of comparison is, consequently, changed and the factors of comparison between 1930 and 1924

rest on different basic data for 1924 than those from which the comparisons between 1907 and 1924 were calculated.

In Table E the expansion of the different groups of trades between 1907 and 1930 is presented by showing, for each of those years, the figures which compare with 100 for the year 1924 in the case of the United Kingdom. Similarly, for the United States, with 1925 as base year, figures for 1909 and for 1929, corresponding to 100 in each case for 1925, are shown. This series of comparisons extends to numbers employed only. For particulars involving money, the repetition of pre-war figures is rather confusing than helpful, owing to the great change in the general purchasing power of money — which may not have been the same in the United States as in Great Britain. That question involves, however, too many additional points to permit of its reasonable discussion in a digression from the main topic.

Reference to Table C will enable the reader to compare the factors representing the proportion, measured in gold money, of the average net output per person employed, for each of the two countries, in each of the groups distinguished, as deduced from the different ranges of material available. It will be seen that the average factor for all groups taken together is almost the same (cf. Table B and Table E). For individual groups divergencies of magnitudes reaching to as much as 8 per cent are found, tho in most of the groups a much smaller difference occurs. The further expansion of the multiple by which the net output per head in the United States exceeded that in the United Kingdom is relatively small. If it be borne in mind that the United States figures for 1929 relate to a year in the greater part of which there was a very active condition of industry, while the United Kingdom figures with which comparison is made relate to 1930, and express conditions in a year of marked depression in both countries, it may suggest itself that facts relating in both cases to 1929, or in both cases to 1930, might have shown no relative advance in this index of comparative productivity in the United States, and might possibly have shown a relative advance in the United Kingdom. This seems a remarkable result when the

TABLE E

Class of Output	TOTAL EMPLOYED				NET OUTPUT PER PERSON EMPLOYED		NET OUTPUT PER HEAD U. S. FIGURES AS MULTIPLES OF U. K. FIGURES	
	U. K. (1924 = 100)		U. S. A. (1925 = 100)		U. K. 1930 (1924 = 100)	U. S. A. 1929 (1925 = 100)		
	1907	1930*	1909	1929				
						1925/1924†	1929/1930	
Textiles.....	98.5	84.5	77.5	101.6	85.7	107.5	2.25	2.82
Clothing.....	110.6	96.3	99.8	108.4	108.6	99.7	3.26	2.99
Leather.....	94.9	93.9	122.7	98.6	101.1	102.1	2.42	2.47
Paper and Printing.....	87.8	108.7	77.0	110.9	110.9	114.4	2.39	2.67
Lumber and Timber.....	110.7	118.6	104.7	97.2	103.5	106.3	2.20	2.26
Pottery, Glass and Building Materials.....	98.2	105.9	92.7	94.2	105.3	109.2	2.96	3.07
Chemicals, Dyes, Drugs, Oils, etc.....	79.9	100.6	68.4	109.1	120.0	123.8	3.16	3.11
Iron and Steel.....	93.8	95.8	58.8	105.8	102.3	113.2	3.19	3.59
Engineering and Shipbuilding.....	87.7	103.2	78.0	124.6	118.9	114.4	3.29	3.61
Vehicles.....	69.1	103.3	53.5	94.9	108.8	112.9	2.85	2.95
Non-Ferrous Metals.....	92.9	93.4	77.8	112.6	110.5	111.9	2.91	2.94
Miscellaneous.....	55.0	106.3	58.2	105.4	117.4	105.5	2.91	2.62
Food and Tobacco.....	81.2	107.8	82.2	106.7	113.8	112.0	2.56	2.32
All Groups.....	90.7	98.7	78.1	105.6	108.7	112.0	2.85	2.93

* These figures include estimates of the complete records of numbers employed, based on the particulars furnished in the preliminary reports.

† In calculating these ratios, the figures relating to the United Kingdom in 1924 have been converted to their approximate gold equivalents.

industrial conditions in the United States throughout the period 1925-29 are considered, but the data available suggest the possibility that it may represent the comparative position more truly than the figures of the table presented. In fact, the differences in the industrial position and outlook in the years which must, of necessity, be selected for comparison have, in each case, introduced some degree of confusion into the interpretation of the results reached. As already noted, 1907 was, in both countries, a year of greater industrial activity than 1909, and 1929 was a year of greater industrial activity than 1930, not only in America and Great Britain, but also in other industrial countries. As between 1924 and 1925, the accurate measure of the effect of the premium on gold in the United Kingdom in 1924 in modifying the magnitude of the index of productivity which has been under consideration, cannot be indicated. Whether the apparent variations of the index are due to considerations other than changes in relative efficiency, it is not possible to determine decisively. The official index number of wholesale prices in the United States gives figures of 96.5 for 1929 and 103.5 for 1925, the reduction in the later year being less than 7 per cent. For the United Kingdom, the official wholesale prices index prepared at the Board of Trade shows, for 1930, a figure of 71.9 in comparison with 100 in 1924. On the basis of gold values in 1924, the figure for 1930 might, perhaps, be about 80. In such circumstances the measurements based on money values, having regard to the absence of figures for the same year in both countries, must be treated with a good deal of discretion. At the same time, it is necessary to remember that differences in movement between prices of materials and prices of finished products are likely to affect the figures of net output more than the general movement, so far as that affects both classes of goods alike. It appears impossible, however, to escape the evidence of a larger physical output, per person employed, in the United States than in Great Britain, an output more than double as great in the former country as in the latter. Of marked variation, or secular increase, in this proportion, the evidence is not conclusive.

It is, however, certain that, concurrently with its more

rapid increase in population, the industrially occupied population has expanded rapidly in the United States, and, in the field covered by our tables, in proportion to the increase in the total population. The population in 1909 was 90 millions, and in 1929 it is stated at $121\frac{1}{2}$ millions. The proportion is almost exactly that of 78.1 to 105.6 shown in the table. Having regard to the heavy percentage of unemployment in the United Kingdom — and elsewhere — in 1930, the numbers recorded in the Census returns, representing persons actually at work, indicate that the comparison, if it had been made for 1929 in the United Kingdom, as well as in the United States, would have shown positive expansion as compared with 1924, and falling not greatly below the expansion shown, namely 5.6 per cent. for the United States in the groups covered by Table E, taken as a whole.

As was indicated by preceding tables, the industrial groups in which expansion in excess of the average was shown were in large degree the same in the two countries. The Paper, Chemicals, Engineering and Food groups showed such relative increase after 1924 in both countries, and in spite of the effects in Great Britain of the cyclical depression that set in during the latter part of 1929 and covered the whole of the year of record in that country. Divergencies in some other cases may possibly, even probably, be traceable to the difference in the situation in 1929 and 1930 in all industrial countries. A few years hence, when records will, presumably, become available for the same year in both countries, a further, and possibly more fruitful, comparison may become possible, more particularly if, before that date arrives, more stable conditions than those of the present time are established the world over.

Two features in particular will strike the student of such aggregates as are presented in the tables A, B, C and E. The first is that, as shown in our examination of Tables A and B, the payment of wages in the United States more than twice as great as have ruled for similar industries in Great Britain (and showing a higher multiple as compared with most manufacturing countries) has not resulted in a range of prices for the products of industry, prices at the factory at any rate,

systematically higher than those ruling in Great Britain for the same products. Further, wages in the industries surveyed have required little more than 40 per cent of the values created in industrial operations in the United States while but little less than 50 per cent of such values was needed for the lower wages of Great Britain. Even if a generous allowance is made for possible non-representative returns to the voluntary wages inquiry in Great Britain, a figure well over the United States proportion of 40 per cent seems likely to result. Thus the higher wage rates of America left a more generous provision for other charges and for the reward of enterprise. Does it not appear remarkable, in such circumstances, that a high general tariff has for so long been deemed necessary to protect the American workman from the competition of less well remunerated workers in Europe? The economy of high wages has found notable advocates and exponents in America. The plain figures of the Census, eliminating in their comprehensiveness the possible misrepresentation that may be based on specially selected data, furnish a remarkable mass of evidence as to the combination of efficiency with high wages in the production of moderately priced commodities.

The second feature that may be readily recognized in the massed figures is that the extension of highly economic methods of production over the whole of the industry of a great industrial country is a task that cannot be accomplished in a hurry. Progress is certainly evidenced by the figures analyzed, but the speedy attainment of the degree of efficiency, over the whole of an extensive industry, that is technically possible at any given time, is not effectively possible in such a world as ours. The belief that we may all be rapidly ruined by the excess of our own competence does not appear to be well founded. What might happen if it were possible to eradicate quickly all out-dated methods of production and of business organization is one thing, what is practically possible, even in a very progressive country, in the way of all-pervading perfection of manufacturing equipment and industrial organization and control may be something quite different.

A. W. FLUX.

COPENHAGEN, DENMARK
MAY, 1933.

MONEY, PRICES AND PRODUCTION: SOME FUNDAMENTAL CONCEPTS

SUMMARY

Introduction, 39. — I. A simplified case; basic relations and equations, 39. — II. "Circular velocity" and "velocity of circulation," 43. — III. The value of working capital, 47. — IV. The required stock of money; determinants of its circular velocity, 56. — V. Producers' goods and "equilibrium"; pure services; government finance, 67. — VI. Summary; available statistics, 72.

Despite the numerous major contributions which have been made to monetary theory in the last decade and a half, I believe that certain fundamental concepts and relations have been inaccurately stated or even ignored, and that from this neglect arises a substantial part of the confusion and conflict which characterize so much of the present treatment of monetary problems. It therefore seems to me worth while to undertake *de novo* the development of these concepts and relations. The discussion which follows is deliberately oversimplified and rigid, and is unrealistic in the sense that no attempt is made to remove certain vital limiting assumptions; to do so would transcend the bounds of the space here available. Nevertheless, I hope that the results obtained will be found measurably to clarify the analysis and interpretation of monetary phenomena.

I

The problem of the present paper is not the problem of determining how the modern monetary mechanism actually works under actual dynamic conditions, nor of determining how monetary changes affect or can be made to affect the "underlying" conditions of production and consumption. Rather, the problem here is one of analysis in a relatively small and essentially "static" field. It will be assumed that we are dealing with an economic society which is in a comparatively stable position, with no important changes taking

place. An attempt will then be made to establish the relations, under these given stable conditions, between the quantity of output and the size of the money stock, on the one hand, and on the other the average level of prices, the size of the national money income, and the total quantity of working capital required to carry the aggregate production process. It can be shown that granted certain other data, to be described presently, these relations are entirely determinate, and can be expressed in simple algebraic form. The establishment of these relations, under hypothetical simplified conditions, is the problem of the present paper.

At the risk of needless repetition, it must be stated again that this problem is not in the first instance one in economic dynamics, and no attempt will be made to formulate "dynamic" laws. The focus of attention here is merely the relations prevailing within a given stable situation, not the processes out of which this situation arose, nor the possible alternative situations which may later develop from it.

The assumption that the society is in a comparatively stable position requires elaboration. At the outset, it will be taken to mean that physical quantity and composition of output, quantity of money, prices, technique of production, and the like remain substantially constant; later these suppositions will be removed. In addition, however, it will be taken to mean that new saving or hoarding and new investment are not taking place currently, tho of course they may have occurred in the past.¹ In other words, income-receivers are assumed to spend their incomes only on consumers' goods or replacement goods, and to spend the incomes either as soon as received, or as soon as anything is offered for sale in the market. This supposition will be maintained throughout the present paper. Despite its apparent lack of realism, it permits certain conclusions to be obtained which would otherwise be difficult of access. The general economic situation connoted by these two sets of assumptions is thus one which might be described as a type of "static equilibrium," but because of the

1. The stock of money itself can also be regarded as an embodiment of past "saving."

lack of any one accepted meaning for the latter term, I prefer not to use it here.

In addition, it is convenient for expository purposes to assume at the outset that the only things which are bought and sold in this stable economy are consumers' goods, and the services required for their production. This means either that the society is assumed to employ no productive equipment, or that its equipment is assumed to last forever, without interest or maintenance charges or other expenses. It also means that so-called "pure" services, and also government operations and the like, are disregarded. These assumptions, however, will later be removed. Finally, matters are simplified somewhat by supposing that the society is isolated, tho this is not essential.

Under these various initial assumptions, then, we have a stable, isolated money economy, in which the only things bought and sold for money are consumers' goods and the services required for their production. Since the society is assumed to be stable, at the outset the kinds and quantities of consumers' goods produced can be taken as unchanging, and also their prices. If P be the average price of the aggregate of commodities to the consumers, and Q the total physical output sold per year, then the annual money volume of production and sales, or $P \times Q$, must likewise be constant. The quantity of money in the society, M , is also assumed constant. Under these conditions, what determines the relation between the size of the money stock, the average level of money prices, and the average money volume of production and sales?

Let us begin with the stock of money. The most important fact about the stock of money is the fact that under the above assumptions, its movement is essentially circular. Consider, for example, a given block of money in the hands of consumers. Since there is no saving or hoarding, and since no producers' goods are offered for sale, evidently this money can be spent by the consumers only for finished consumers' goods. When thus spent, it passes into the hands of the producers, who in turn use it to pay the bills of wages and other services

which they have incurred in producing consumers' goods. But those who receive money incomes from the production of consumers' goods are also, in the aggregate, the consumers themselves.² Thus the original block of money returns to the consumers, and completes its circular movement, only to begin a new circle.

Now certain specific units of money may complete this circle rapidly, and others slowly. Some units may be paid out by the producers immediately after receipt, and others only at a considerable interval. But we are here assuming that the general situation is stable; that the rates and quantities of production do not change; and that the consumers themselves do not hoard money, but instead spend it, either immediately on receipt or as soon as goods are offered for sale in the market. In consequence, there will be an intelligible average rate at which the average unit of money completes the consumer-producer-consumer circle; and this average rate will itself be stable. Call the rate the circular velocity of money, measured in terms of the number of circles completed per year; let it be C . Then it is clear that the number of units of money in the money stock, multiplied by this average annual rate at which the average unit of money completes the consumer-producer-consumer circle, must equal the money volume of consumers' goods sold in a year. That is,

$$M \times C = P \times Q. \quad (1)$$

Under the limited and stable conditions assumed, the formal validity of this equation is not debatable.³ Moreover, relaxing the assumptions for a moment, it is evident that if any two terms in the equation are constant, changes in the other two terms must be directly or inversely proportional to one another. For example, given C and Q , then M and P

2. Incomes which are paid and received in ways other than through the exchange of money may be disregarded here, since the operations involved do not in themselves alone affect the working of the *money* economy. Barter exchanges in general, and especially the conduct of farms in so far as they consume their own produce, are cases in point.

3. This equation was presented some years ago by Professor Schumpeter, in "Die Sozialprodukt und die Rechenpfennige" (Archiv für Sozialwissenschaften, 1917-18).

must move together. But this is, to repeat, only a formal statement, and carries no "causal" implication.

The equation permits one other important corollary. The right-hand member, $P \times Q$, measures the annual volume of sales of consumers' goods. But it also measures, pro tanto, the annual volume of consumers' expenditures on such goods. Let aggregate consumers' expenditures per year be NE (national expenditures). Then:⁴

$$M \times C = P \times Q = NE. \quad (2)$$

Like the preceding one, however, this equation has validity only within the assumptions stated.

II

Three of the four terms in equation (1) represent familiar concepts. The concept of the "circular" velocity of money is also one which a number of writers have utilized,⁵ but its precise meaning, in terms of the factors which actually govern its size, is not immediately obvious. To understand these factors, it is necessary first to examine the relation of "circular" velocity to the velocity of money as that term is ordinarily interpreted; and then to determine the relation of the quantity of money to the value of working capital.

The commonest meaning of "the velocity of circulation of money" is that found in Ricardo and Mill, and made especially familiar by the work of Fisher and Snyder. In this meaning, velocity designates the number of times that the average unit of money *changes hands* in a given period, usually a year. This we may call the transactions-velocity or the

4. If we consider the second and third members of this double equation, it is evident that NE divided by P , and divided again by the size of the population, yields an index of average real income per caput. Even when saving is included, so that money incomes and money expenditures are no longer necessarily equal, this index measures the material satisfactions actually enjoyed currently.

5. See especially the extensive use made of the concept by D. H. Robertson in his *Banking Policy and the Price Level* (London, 1926), and the "circuit velocity" of Messrs. Foster and Catchings — tho Robertson gives the concept a content somewhat different in detail from that which I shall utilize here. The concept has a fairly long history, tho I am not clear who may properly be said to have "invented" it.

exchange-velocity of money. Numerical values for this type of velocity are ordinarily obtained by dividing the estimated total volume of money payments in a year by the number of units in the aggregate money stock.

To illustrate the relation between "circular" velocity and this "exchange" velocity, suppose first that there is only one producer in the society. Suppose further that the only money payments in this society are, first, those made by the single producer to the consumers, in return for services rendered by the latter in furthering production; and second, those made by the consumers to the producer, in return for finished goods purchased. Then every time that the average unit of money completes its circular movement, from producer to consumer and back to producer, it will evidently *change hands* twice. That is, the *exchange* velocity of money is here twice its *circular* velocity. Next suppose, instead, that the aggregate process of production is divided between two different producers, one handling the first half of the process and the other, who buys semi-finished products from the first producer, handling the second half. Let both the length of the aggregate production process and the annual volume of finished products sold to consumers be the same as in the first case, so that the necessary quantity and the average *circular* velocity of money are unchanged. Some of the money received by the second producer, in return for finished products, will again be paid out by him directly to consumers, to meet current production costs, and will thus again change hands twice in completing its circular movement. But some of the money will be paid over by the second producer to the first producer, in return for semi-finished goods, and will only subsequently be paid over by the latter to the consumers. This part of the money stock therefore changes hands *three* times in completing its circular movement. The *average* exchange velocity of the money stock as a whole, in this case, is thus between two and three times its circular velocity, say two and a half times.

As the number of producers between whom the aggregate production process is vertically divided increases, the ratio of exchange velocity to circular velocity evidently rises. Let

L be the number of successive stages or levels through which the *average* unit of money passes in completing its circular movement; that is, the number of times it changes hands. Let V , following the usual notation, be the annual *exchange* velocity of money, C being again its annual *circular* velocity. We then have

$$V = C \times L. \quad (3)$$

The relation of L to the successive vertical steps, into which the organization of the production process itself is divided, is as follows. Let there be n such steps, each handled by independent producers; the producers in each step buy raw materials or half-finished products from the producers in the preceding step, and after fabrication sell their own products to the producers or merchandizers in the next succeeding step, or to the final consumer. Ruling out possible exchanges of finished products between the consumers themselves, we then have:⁶

$$L = n + 1. \quad (4)$$

Substituting in equation (3),

$$V = C \times (n + 1). \quad (5)$$

These equations cast an interesting light on Professor Fisher's familiar Equation of Exchange,

$$M \times V = P \times T. \quad (6)$$

It is evident that this last expression is formally valid, but that it is of little direct use in the main problems of monetary theory. The size of the term V is dependent partly on the circular velocity of money, but partly on the accident of the prevailing forms of business organization. To make the matter still clearer, suppose that both the annual money volume of sales of finished products and the length of the aggregate production period are constant, so that the total quantity of money needed and its circular velocity are also con-

6. In the case of a production process which is completely integrated vertically, the value of n is 1, of L is 2, and of V is hence $C \times 2$.

stant. If the production processes are organized in highly integrated vertical units, the number of times the average unit of money changes hands in completing its circular movement will be relatively small, and its exchange velocity will be low. If the production processes are not integrated vertically, on the other hand, but are split up between many independent firms, the average unit of money will change hands many times in completing its circular movement, and its exchange velocity will be high. Thus exchange velocity in itself alone has no unique relation — and still less a determinant relation — to either the quantity of money, the annual money volume of production, or the level of prices. None of these magnitudes is influenced in the slightest degree by the form of business organization as such, whereas the form of business organization is one of the two factors which do determine exchange velocity. It is similarly evident that Professor Fisher's expression $P \times T$ is devoid of any unique meaning for the problems of monetary theory. Other things equal, it too varies in size inversely with the prevailing degree of vertical integration in business organization.⁷

Despite these considerations, however, the existing data on the exchange velocity of money are of great significance. The forms of business organization apparently change only rather gradually as a rule, and by small amounts. For periods of perhaps several years in length, the term L in equation (3) can therefore be treated as virtually a constant. It then follows that the short-period fluctuations of exchange velocity reflect primarily the fluctuations of *circular* velocity, when the quantity of money is treated as constant, and can be used as a relative measure of these latter fluctuations. We shall come back to the question later.

7. Similarly, imagine two men who amuse themselves by exchanging a single block of goods and a single block of money back and forth indefinitely, at a fixed price. The exchange-velocity of money and the $P \times T$ term would then rise to great magnitudes, without there being any change in the society's money volume of output, the size of the money stock, or the average level of prices (except for the small effect of thus keeping one block of money from use in the general production and exchange process).

III

The relation of circular velocity to the familiar exchange velocity of money is thus clear. But this relation alone will not serve to establish the factors which determine circular velocity itself, for no manipulation of Professor Fisher's type of equation can yield an expression which is independent of the prevailing degree of vertical integration in business. To ascertain the factors which uniquely determine the circular velocity of money, it is necessary to follow a different line of investigation: first, to establish the factors which determine the value of working capital; and second, to establish the relation between this value and the size of the stock of money required to carry the production and exchange process as a whole. At the outset, the limiting assumptions set up at the beginning of this paper will be retained: namely, that the society is "stable," that there is no saving or hoarding, and that the only things exchanged for money are consumers' goods, and the services required in their production.

I shall define "working capital" as the aggregate of the goods in process of production, plus any cash balances currently held by producers to meet anticipated further costs of finishing such goods in process. The money value of the working capital at a given time is the sum of the money costs (including average profits)⁸ which have already been met in fabricating the goods currently in process, plus the money value of any cash balances currently held by producers to defray anticipated costs of this sort.⁹ It is evident that in a stable society such as is here assumed, this value of working

8. In a "stable" society such as is here assumed, there are no windfall gains or losses. Profits are therefore solely average wages of management, and can properly be included among the ordinary costs of production. Under the definition of a stable society set up above, with no savings and with no equipment or with costless equipment, there would also be no interest payments, upkeep and amortization charges, or the like.

9. Working capital is frequently defined by economists to include only goods in process; see especially D. H. Robertson's *Banking Policy and the Price Level*. This definition, however, makes the problem of analysis much more complicated, since under it working capital usually cannot be treated as a constant even when general conditions are stable; and it is of course at variance with ordinary business usage — to which the definition in the text above, on the contrary, conforms.

capital must be constant, for the decreases resulting from payments of cash by the producers to meet current costs are exactly offset by the resulting increases in the value of goods in process; and the increases in cash balances resulting from sales of finished goods to consumers are exactly offset by the corresponding decreases in the value of goods currently in process. Moreover, in a stable society there will be no accumulation of stocks of goods produced in excess of the known absorbing power of the market. What, then, is the relation of the value of this working capital to the value of the products finished and sold in a given period, say a year?

The answer depends principally on two factors. One is the length of the production period itself. We shall define the production period as the time elapsing between the initial outlay on a given block of goods, and the initial outlay on the block of goods which is started *after* the first block has been completed and final payment for it has been made by the consumers. Other things equal, the longer this period, the larger must be the value of the working capital required to carry the production of a given *annual money volume* of finished products. The second factor is the degree to which different stages of the aggregate production process can be conducted simultaneously; that is, it is the number of different successive batches of goods which can be fabricated at the same time. In manufacturing, this number is usually high. At the same time that one batch of goods is approaching completion, the production of another batch may be just starting; a third batch may be half finished, another three-quarters finished; and so on. But in most branches of agriculture, at least in countries of the cold and the temperate zones, this simultaneity is usually impossible to achieve. Because of the seasonal cycle in weather conditions, sowing and harvesting cannot be carried on together, but must be conducted as successive operations. Now the presence or absence of this simultaneity directly affects the value of the aggregate working capital required to carry a given money volume of annual output, and also the size of the stock of money which is necessary. The larger the number of different successive

batches of goods in process at the same time, the smaller do these magnitudes become. The relations involved are as follows.

Take first the production of an agricultural commodity such as wheat, and suppose that there can be only one crop a year. The effective length of the production period, as defined above, is then also one year; an entire year elapses between the initial outlay on a given crop, and the initial outlay on the next crop started after the first one has been sold and paid for. Let $P \times Q$ be the value of the product sold in a year, and let W be the value of the working capital required to carry this annual production. In this case, it is evident that W must be equal to $P \times Q$. The producer must have, in advance of starting production, sufficient funds to meet all the costs of the production process (loans being ruled out under our present general assumptions), because until the production process is completed, the producer will have nothing finished and ready for sale in the market, and will hence be unable to recoup his earlier outlays. But the sum of these costs, or W , is the value of the year's sales, or $P \times Q$.

Suppose next that two successive crops, each of the same value as before, can now be raised in a year, with an average production period of only six months. No more working capital will be required than before. When the first crop is marketed and sold, the producer gets back the cash previously paid out to meet the costs of production of this crop, and thus obtains the funds needed to carry the production of the second crop (barring for the moment possible delays in marketing). But since there are now two crops per year, each of the same value as before, the value of the total produce sold per year will be twice what it was before; that is, $P \times Q$ will be twice as large. And W , which is unchanged, will therefore now be only half the size of the annual $P \times Q$ term. Similarly, if there are three successive crops or production periods per year W will be only one-third of $P \times Q$; and so on. Thus the ratio between W and $P \times Q$ varies inversely with the length of the production period.

Now let R be the number of successive production periods

completed per year, or the *rate* of production. If the production period lasts six months, there are two successive periods per year, and the value of R is $12/6$, or 2; if four months, R is 3; and so on. We can then write, for this case where production is carried on only by successive or non-simultaneous stages,

$$W \times R = P \times Q, \text{ or } W = \frac{P \times Q}{R}. \quad (7)$$

In this particular case, it also happens that the quantity of money needed to carry the aggregate process of production and sale, or M , is precisely equal to W . At the start of any one process, all the money is in the hands of the producers. As the process progresses, the producers pay out this cash to meet their current costs of production, until at the end the product is completed and the money all gone. Then they sell the finished product to the consumers (who in the aggregate are also, by definition, the receivers of income from the production process), and thus receive the total stock of money back again. That is, in this case,

$$M = W = \frac{P \times Q}{R}. \quad (8)$$

It should be pointed out, in passing, that M can never exceed W under the present assumptions. If it did, that would mean that some part of the money stock was not being currently used in the production and exchange process, and hence being hoarded; a possibility which we have ruled out for the moment. The fact that M here cannot exceed W is important, as will appear later.¹

Next, instead of the typical agricultural situation, take the typical industrial manufacturing situation. Here marketing obstacles may intervene, as will be shown subsequently, but there is usually no purely technical reason why production should not be carried on in a series of different stages which are all conducted simultaneously. Then when the existing plant is utilized to the full, there will be as many batches of

1. But when consumers' reserve balances are introduced, M can exceed W ; see the discussion following equation (16), below.

goods currently going through the production process, but each in a different stage, as there are stages themselves. To illustrate from a simplified case, take the production of shoes by early handcraft methods, and assume that there are four separate stages in the process; for example, preparing and tanning the leather; cutting; stitching and nailing; and marketing. Suppose the equipment and labor used in each stage are of such character that when work is begun on a particular batch of goods in that stage, the fabrication of a second batch cannot be begun in that same stage until the first batch has been carried through the stage. The four stages, however, can all be carried on simultaneously. At the maximum, there will then be four different batches of goods in different stages of production at any one time.

Now let the values of the product at the end of each successive stage be 5, 10, 15, and 20, so that the finished product itself sells at a price of 20 per batch. The producer may be thought of as first starting the production of one batch; then, as soon as the first stage of this batch is completed and the corresponding equipment and labor are released, he starts the production of the next batch; and so on. With only four simultaneous stages and batches, however, the *fifth* batch cannot be started until the *first* batch is entirely finished and sold to consumers. The fifth batch can therefore be regarded as taking the place of the first batch in the general stream of continuous production and sale, and its production can be regarded as being financed with the funds received from the sale of the first batch; and so on. The situation is illustrated in the accompanying diagram, in which it is assumed that production is continuous and even. The successive stages in

Batches	Money Values at End of Each Stage																
I, V, IX.....	5	10	15	20	|	5	10	15	20	|	5	10	15	20	|	5	
II, VI, X.....	-	|	5	10	15	20	|	5	10	15	20	|	5	10	15	20	|
III, VII, XI.	-	-	|	5	10	15	20	|	5	10	15	20	|	5	10	15	
IV, VIII, XII	-	-	-	|	5	10	15	20	|	5	10	15	20	|	5	10	

the production of each batch are shown horizontally. The arabic numerals indicate the values of each batch at the end of each stage. The vertical bars indicate the beginnings and

ends of aggregate production periods. The overlapping of different batches and stages is shown by the construction of the diagram itself.²

The numerals also show the value of the working capital employed in each stage. Since the value of the working capital has been defined as the sum of the value (cost) of goods in process *and* the cash balances held by producers to meet the further costs of such goods in process, the value of the working capital required for any one batch in any one stage is constant; it equals the value of the end product of that particular stage. At a given time, the value of the aggregate working capital required to carry the production process *as a whole* is similarly the sum of the values of the working capital required to carry each different batch at that time. This sum is simply the sum of the values in any vertical column in the diagram; after the production process is in full swing, the sum is constant, and in the example given is always 50.

Suppose that the length of the production period (measured by the horizontal distance between the vertical bars) is one year. Then in the course of a year four batches are finished and sold, and since each has a value of 20 when sold, the total annual money volume of production and sale is 80. If the production period lasts only six months, on the other hand, the total will be twice this; and so on. What is the relation between this total annual money volume of sales, and the value of the working capital required? Experimentation with these and other numerical examples confirms the conclusion that as the number of batches in different stages of production *at a given time* increases, the value of the working capital required falls, and approaches as a limit one-half of the total value of the output sold in a single production period; but that it always exceeds this latter sum by an amount vary-

2. In actuality, the producer will ordinarily not start the production of the second batch until the first batch is completed and sold; the sale will then give him funds with which to work up to the maximum of four different but simultaneous batches. To get as even and continuous a flow of receipts from sales as possible, and to maximize the utilization of plant, he will usually stagger the batches, as shown in the diagram.

ing inversely with the number of separate stages in production which can be carried on simultaneously.

This excess is accounted for by the fact that the producer's working capital consists not only of goods in process of production, but also of the cash needed to defray current costs of production in the interval between one sale of finished products and the next. In the stable production situation depicted in the diagram above, the costs to be defrayed in any one such interval are precisely equal to the proceeds of the sale of one batch of finished goods, or 20 units of money. Just after a sale, the producer has 20 units of money on hand, while just at the end of the interval elapsing before the next sale, he has no cash left at all. The *average* amount of cash in his possession at any time is therefore one-half the sales value of a single batch of finished goods. This is therefore the amount by which the value of working capital exceeds the sum just indicated — that is, exceeds half the value of the output sold in a single production period. The algebraic expression for the latter sum is simply half of $(P \times Q)$ divided by R , the number of production periods per year. What is the expression for the excess?

Let d be the *reciprocal* of the number of separate stages in production which can be carried on simultaneously. Then d itself is a fraction which also measures the length of the interval between the sale of one batch of finished goods and the next, in terms of the length of the aggregate production period. The value of d lies, according to the commodity, between a maximum of 1 in the case of most agricultural commodities, and a minimum which for commodities manufactured by continuous-production methods may be very little above zero. It then follows that the sales value of a single batch of finished goods is,

$$\frac{P \times Q}{R} \times d.$$

The average amount of cash, which producers require to tide them over between one sale of finished goods and the next, is simply half this sum.

The total value of the working capital required to carry a

given annual money volume of sales, under these conditions, is then

$$W = \frac{P \times Q}{R} \times \frac{1}{2} + \frac{P \times Q}{R} \times \frac{d}{2}, \text{ or, } W = \frac{P \times Q}{R} \times \frac{1+d}{2}. \quad (9)$$

In the numerical illustration given above, the value of $P \times Q$ is 80, of R is 1, and of d (with four different stages in production being carried on simultaneously) is 0.25. The value of W from the equation is therefore 50, the same as that shown by the diagram. In the case of production *by successive stages alone*, as in the agricultural situation discussed earlier, only one stage of production can be carried on at a time, and the value of d is therefore 1. With this value assigned to d , equation (9) becomes identical with equation (7). As will be shown later, d also measures (reciprocally) the number of successive payments, for successive different batches of finished goods sold, which are made in the time required to complete one production period; its average value in the United States is apparently about 0.5.

This equation for the value of working capital is accurate when the commodities concerned grow evenly in value through the production process. It is inaccurate, on the other hand, when the growth in value is uneven. If the larger part of the value is acquired near the sales end of the production process, W is somewhat smaller than shown in the equation; the working capital turns over more rapidly, and therefore less of it is needed. If the larger part of the value is acquired near the raw materials end, W is larger than as shown. In most cases, however, the growth in value is presumably fairly even; and in any event, as will appear presently, its evenness does not affect the size of the money stock required. To avoid complications in the subsequent argument, we shall therefore assume that equation (9) is substantially valid as it stands, leaving the more precise expression for a footnote.³

3. Letting U be the measure of evenness in the growth in value, the accurate expression for W is:

$$W = \frac{P \times Q}{R} \times \left(\frac{1+d}{2} + U \right). \quad (10)$$

The value of U is determined by setting up an arithmetic progression

The last equation in the text also permits the derivation of an expression for the rate of turnover of working capital. This rate expresses the number of times that working capital must "turn over" each year, in order to carry a given annual money volume of production and sale. If T be this annual rate of turnover, then:

$$W \times T = M \times C = P \times Q. \quad (11)$$

By substituting for W from equation (9), we get:

$$T = \frac{R \times 2}{1 + d}. \quad (12)$$

It should be observed that what "turns over," however, is not the working capital itself, since the producer, under the having a number of terms equal to the reciprocal of d , and of which the last term equals the money value of one batch of finished goods. Then determine the difference for each term between this progression, representing even growth in value, and the terms for the growth in value actually found in the given case. The algebraic sum of these differences is U ; that is, it is the amount which should be added to equation (9). The table below illustrates even growth, and two types of asymmetry in growth of value. In each case, the value of $(P \times Q)$ is taken as 80; R as 1; and d as 0.25, its reciprocal being 4. That is, four different batches of goods are in process at the same time, and four different stages of production are conducted simultaneously.

Stages	I	II		III	
	Even Growth	Asymmetry		Asymmetry	
		Actual Value	Difference from I	Actual Value	Difference from I
1	5	1	- 4	15	+10
2	10	2	- 8	16	+ 6
3	15	3	-12	18	+ 3
4	20	20	0	20	0
	50	26	-24	69	+19
	$W = 50$ $U = 0$	$W = 26$ (or $50 - 24$)	$U = -24$	$W = 69$ (or $50 + 19$)	$U = +19$

For the country as a whole, the growth in value is presumably fairly even, and the average value of U hence close to zero.

Also see Robertson's somewhat different procedure and conclusions, in his *Banking Policy and the Price Level*, especially the Appendix to Chapter V.

conditions here assumed, always has a constant value of working capital on hand, either in the form of cash or of goods in process or of both. What turns over is the original cash which the producer began with, before actual production was started.⁴

IV

Next, how large a stock of money is needed to carry this annual money volume of production and sale? For the moment, we may disregard possible delays or frictions in the machinery for transferring money payments itself, and may suppose that such transfers can be effected instantaneously. We also continue the assumption that there is no new saving or investment, and no other general change in the situation, so that the society remains "stable."

Under the other conditions here assumed (also see the diagram above), the stock of money need only be large enough to effect the sale of one batch of finished goods. This is true, because we are still supposing that consumers do not build up permanent cash reserves, but spend their incomes as soon as anything is offered in the market to spend them on; and that the producers similarly keep only sufficient cash on hand to tide over the intervals between receipts. Under these assumptions, the quantity of cash in the producer's hands varies. When he has just received payment for a new batch of finished goods sold, the cash in his hands equals the sales value of the batch. But the ratio between the value of a single batch and the value of the product sold in the time required to complete one production period ($P \times Q$ divided by R) is measured by d , the reciprocal of the number of successive batches completed per production period. The value of a single batch, as already shown, is therefore:

$$\frac{P \times Q}{R} \times d.$$

The producer then gradually pays out this cash to meet his

4. The limiting value of T , as d grows larger, is here $R \times 2$. If the term U is included (equation 10), the expression for T is,

$$T = R \times \left(\frac{2}{1+d} + U \right). \quad (13)$$

current costs of production, and just before the next succeeding batch is finished and sold, he has no cash left at all. The average amount of cash in his hands is therefore just half of the above expression.

The cash in the hands of consumers varies analogously tho inversely. Assume for the moment that there is only one producer who makes only one type of commodity. Then when the consumers have just bought a new batch of finished goods, they have no cash left at all — since by definition they do not build up permanent cash reserves. In the ensuing interval, they then receive further income from the producer, and thus increase their holdings of cash again. Just before the next batch of finished goods comes on the market, their holdings once more equal the sales value of the new batch. The average amount of cash in their hands is therefore likewise half the value of the finished batch, or half of the expression given in the preceding paragraph.

The total amount of money needed to carry on the production and exchange process is therefore the sum of these two average amounts, since as consumers' holdings of cash increase those of the producer fall, and vice versa. That is,

$$M = \frac{P \times Q}{R} \times d. \quad (14)$$

The derivation of this equation, however, rests on certain severe assumptions; namely, that there is only one producer, and that neither this producer nor the consumers build up permanent cash balances. We may continue for the moment the assumption that there is only one producer; its removal does not affect the equation, as will be shown presently. What about the cash balances? If the producer builds up cash balances in excess of what he needs currently to carry on his business, the cash involved is in effect subtracted from the current production and exchange process. But the producer, under stable general conditions, has no reason to take action of this sort. The maximum possible amount of cash he can require is the amount needed to carry the costs of the production process between one sale of finished goods and the next;

it is an amount equal to the value of one finished batch of goods, as already shown. To hold any balance larger than this sum would merely be to tie up funds without earning anything on them, which would be against the producer's own interest. A permanent accumulation of cash balances by producers simply as reserve funds, under stable general conditions, can therefore be ruled out. (The accumulation of such balances for purposes of investment, on the other hand, presents a problem outside the range of the present paper.)⁵

But the accumulation of permanent cash balances by individual consumers, as a contingency fund, is a universal phenomenon, and must be taken into account. Suppose the consumers never let their holdings of reserve cash fall below a certain size. Then the consumers' holdings of cash will equal this amount, plus any part of their last installment of current income which they have not yet spent on current purchases of finished goods. This last sum fluctuates, as was shown a few paragraphs above; its average size is one-half the value of the right-hand member of equation (14). Now let us measure the *permanent* reserve cash balances of the consumers as a fraction of their money expenditures on finished consumers' goods which are made in the time required to complete one production period; the latter sum is of course equal to their total annual expenditure on such goods, $P \times Q$, divided by the number of production periods per year, R . Designate the fraction just described by the symbol b ; it measures the relative size of the consumers' reserve balances. For example, if the aggregate reserve balances equal one-tenth of the consumers' aggregate expenditures made during one production period, the value of b is 0.10. The expression for the value of the aggregate reserve balances themselves then is:⁶

$$\frac{P \times Q}{R} \times b.$$

5. Thus the average corporation usually carries substantial cash balances over and above its current needs, but under stable conditions these balances are best regarded either as undistributed profits, or as funds saved but not yet invested.

6. Instead of this, the building up of reserve balances by consumers

Under these conditions, the total stock of money required to carry a given money volume of production and sales is equal to the average balances held by producers, plus the average 'amount held by consumers *apart* from minimum reserve cash, plus the minimum reserve cash itself. That is, it equals the amount shown in the right-hand member of equation (14), plus the amount shown in the expression in the previous paragraph. We therefore have:⁷

$$M = \frac{P \times Q}{R} \times d + \frac{P \times Q}{R} \times b, \text{ or, } M = \frac{P \times Q}{R} \times (b + d). \quad (15)$$

That is, the quantity of money required to carry a given annual money volume of sales of consumers' goods, when there is no new saving or investment, is jointly determined by the technical conditions of production and merchandising, which are reflected in the terms R and d ; and by the minimum amount of cash people habitually keep by them, which Marshall stressed so heavily and which is reflected in the term b . It is important to observe, however, that this last factor, the size of consumers' reserve balances, does *not* directly affect the size of the working capital currently required by producers to carry a given money volume of production can be regarded as increasing the aggregate effective length of the production period as here defined, and hence as lowering the values of R and of C . In that event, the term b would not appear in the equations. But this procedure would conceal one of the important factors (the size of consumers' reserve balances) which determine the size of the money stock, and would prevent any direct expression of this factor in the equations.

7. The quantity of money required, unlike the value of working capital, is *not* affected by the evenness with which goods grow in value through the production process, as can be seen from the equation. Apart from consumers' reserve balances, this quantity is only the sum which is needed to purchase one batch of finished goods.

Equation (15) could be made algebraically simpler by expressing b and d in annual terms, instead of in terms of the length of the production period; this would get rid of R . But to do so would deprive the equation for the money stock of comparability with the equations for working capital, already presented; and would mask an important source of long-period changes in the relation between M and $P \times Q$; namely, changes in the length of the aggregate production period itself.

duction and sale; equations (9) and (10), above, remain valid.⁸

From equation (15) certain useful corollaries can be drawn at once. By comparing it with equation (1), above, we obtain a definitive expression for the annual circular velocity of money:⁹

$$C = \frac{R}{b+d}. \quad (16)$$

That is, circular velocity varies directly with the number of production periods per year, and with the number of different stages in production which can be conducted simultaneously (the reciprocal of d), while it varies *inversely* with the size of consumers' reserve balances, b . These are the factors which exclusively determine circular velocity; and this is the final expression for C , which we shall hereafter use. Nor is the expression altered by the introduction of new saving and investment, altho this cannot be demonstrated in the present paper.

From equation (16), we can also substitute for C in equation (1), and then obtain:

$$M \times \frac{R}{b+d} = P \times Q. \quad (17)$$

Finally, from equations (9) and (15) we can derive an expression for the relation between the size of the money stock and the value of working capital:¹

8. If consumers permanently increase the size of their reserve balances, their current outlays on consumers' goods will decrease; that is, the $P \times Q$ term will fall. The value of working capital will then also decline because of this fall, with attendant losses to producers. But the relation between $P \times Q$ and W will remain unchanged; it is determined solely by the factors R , d , and (in the case of uneven growth in value) by U . It is this relation which equations (9) and (10) define. Indeed, these two equations will remain unaltered throughout the subsequent argument; and it could be shown, if space permitted, that they are also not affected by the introduction of new saving and investment.

9. This equation can also be obtained, tho more cumbrously, by an analysis of the total volume of money payments and the use of Fisher's type of equation.

1. At first glance, it appears that another important variable should be included in this equation and in (17): namely, the current stocks of producers' and merchants' goods. But this excess has already been

$$M = W \times \frac{(b+d) \times 2}{1+d} \quad (18)$$

Thus the money stock required to maintain a given value of working capital varies inversely with the number of different stages in production which can be carried on simultaneously (or varies *directly* with d); and also varies inversely with the size of consumers' reserve balances, b . This expression too is not affected by the introduction of new saving and investment, tho again the demonstration cannot be made in the present paper.

Now for the United States as a whole, the value of d is hardly less than 0.4, since in most branches of agriculture it is nearly 1; and 0.5 is a more probable value. It will also be shown later that the probable value of C is around 1.5; and, again because of the influence of agriculture, it is not likely that the value of R is much above 1.2 per year. Substituting these values in equation (16) gives a value for b of 0.3.² Substitution for b and d in equation (17) then indicates that M is roughly equal to W times 1.07. In other words, under American conditions the value of working capital is almost as great as the value of the money stock. This conclusion, however, is necessarily only tentative (see below).

accounted for. With a fixed money stock, the producers and merchants can build up excess stocks of goods only by currently producing more than they sell. This means, conversely, that consumers are receiving current incomes in excess of their current expenditures; and hence that their reserve balances, measured by the term b , are increasing. Other things equal, changes in b hence reflect changes in excess stocks of goods.

When the growth in value of goods in process of production is uneven, equation (10) should be used instead of (9). In place of (18), we then have:

$$M = W \times \frac{(b+d) \times 2}{1+d+(U \times 2)} \quad (19)$$

On the average, however, the value of U is presumably close to zero, as already suggested.

2. Taking R at 1.2 per year, the value of b on an *annual* basis is 0.36. That is, the reserve cash balances of individuals apparently amount on the average to about four months' income. This seems high. It must be remembered, however, that "reserve cash" as actually measurable from the available data includes money saved but not yet invested, both for individuals and for corporations. If b could actually be measured sepa-

Of the elements in these equations, the number of production periods per year (R), and the number of separate stages of production which can be conducted simultaneously (the reciprocal of d), are not likely to vary suddenly or widely. They are determined by the prevailing state of technique, which changes only slowly. Over time, the relative size of consumers' reserve balances (b) is probably also fairly stable; and for the present we shall continue to assume that it remains constant. But in short periods these latter balances may and do fluctuate widely, and are hence a major source of short-run fluctuations in general business conditions. We shall return to this question later.

The foregoing equations provide expressions for the determination of the values of that working capital and that money stock which are necessary to carry a given total annual money volume of production and sale, and for the determination of the velocities involved. In these equations and the accompanying argument, the concept at which the reader is most apt to cavil is the concept of distinct and indivisible "stages" in the production process; stages which are assumed to succeed one another with respect to the movement of any one batch of goods through the production process, and which under certain conditions can be conducted "simultaneously" with respect to different batches of goods. How real is this concept of stages?

Its reality for certain types of commodity is self-evident. In the case of most agricultural products, discussed in the preceding section, there are definite stages each of which requires a substantial period of time to complete, such as planting, cultivating, harvesting, and marketing. Even if each stage were conducted by a different producer, the flow of receipts to each producer from the sale of the end product of his stage could not be continuous. On a given area of land, rarely, it would be much smaller, and probably equivalent on the average to only a few weeks' individual income.

Given these terms, approximate numerical values can also be assigned to W and T ; see equations (9), (11) and (18) above, and the footnotes following them.

only one crop of a given sort can be raised at a time, and until that particular crop is ready to pass into the next stage of "production," the producer can receive nothing from its sale (unless through borrowing, which we here exclude). The same thing is true of many lines of manufacturing, where a given block of equipment is tied up for a substantial interval in the handling of a single batch of the product. Until the particular batch is finished, the equipment cannot be used for any other, and the concept of definite indivisible "stages" is here again applicable. Examples are provided in the fabrication of ships, buildings, most means of heavy land transportation, and the like.

But in other lines of manufacturing, especially those where large-scale, continuous-flow operations are practicable, the interval between the starting of one "batch" of product and the next becomes extremely small, and may almost vanish. Examples are found in the production of steel half-products, automobiles, shoes, cloth, most prepared foods, and the like. Here the conditions which delimit separate "stages" cease to be those of the technical situation alone, and become those of the marketing and payment situation. If commodities are produced in a continuous stream, with goods in all possible different stages of production at any one moment, but if the finished product is paid for by the buyers only once a month, the amount of money required to effect payment for the finished products is evidently equal to at least one-twelfth of the value of the annual sales. The producer will on the average have cash balances on hand equal to half a month's sales; and the consumers, apart from their reserve balances, will on the average have an equal amount. The total stock of money required, apart from consumers' reserve balances, will therefore equal the value of one month's sales. This interval between receipts also makes the value of the working capital required larger than it would otherwise be, since the producer must on the average hold larger cash balances to bridge the intervals over. If the average interval were two months instead of only one, the amount of money and the value of working capital required would be still larger.

For the concept of stages determined by production conditions alone, we may therefore now substitute the broader concept of stages determined by the average size of the intervals between successive payments for finished goods sold. The same symbol, d , can be used to denote the relative length of these payment-intervals; and the preceding argument and equations then remain unchanged in their general form. That is, d now becomes *the reciprocal of the number of payment-intervals per production period*. This number of payment-intervals is determined in the first instance by the technical conditions of production, and secondarily by the current commercial habits of the population. Where production conditions limit and determine the number of different batches of goods which can be in different stages of production at the same time — limit the possible degree of simultaneity in production — they also limit the possible number of payment-intervals per full production period. Thus in most branches of agriculture, as already remarked, there can be only one crop per production period, and hence only one aggregate payment to the producer in this period, tho the payment itself may be spread over time. Here the value of d , which is the reciprocal of the number of payment-intervals per production period, is usually equal to 1. Where technical conditions permit many different batches of goods to be fabricated in many different "stages" of production at the same time, on the other hand, the *possible* number of payment-intervals may be very large, and the possible value of d hence close to zero.³ This is the case in many lines of manufacturing, especially where continuous-production methods are feasible. But here commercial practice intervenes. As a matter of convenience, current commercial accounts in handling finished consumers' goods are usually not settled more frequently than once a month, on an average of the year. Even here the value of d is hence substantial; it presumably equals one month, divided by the number of months required to complete the entire production period itself. For

3. If payments were made every business day, the value of d would be R , divided by about 300.

the country as a whole it therefore seems likely, in view of the importance of agriculture, that the *average* value of d is around 0.5.⁴ It should be admitted at once, however, that there is little direct evidence as yet to support any specific numerical value for d .

Now these payment-intervals, of which the relative length is measured by d , definitely determine, in conjunction with the other factors already described, the aggregate value of the working capital and the aggregate size of the money stock which a country requires to carry a given money volume of production. Money which has just been paid to the producer for finished goods sold cannot be utilized for any other purpose *at that moment*, cannot be in any other place. This money will come back into the hands of consumers only as it is gradually paid out again by the producer to meet his current costs of production, in the interval elapsing before his next receipt of cash in return for finished goods sold. It there-

4. Strictly speaking, the value of d should be determined by ascertaining the size of each interval between the various payments that occur in the course of a given aggregate production process (as, between consumer and retailer, retailer and wholesaler, wholesaler and manufacturer of finished goods, and so on). Then each interval should be weighted according to the average size of the payments made at the end of that interval. The *maximum* interval thus obtained, divided by the length of the aggregate production process, is the value of d (the weights should of course be removed before the division; they serve only to determine the interval which is to be used as a base). Thus the retailer may receive payment from the final consumer every day or week; but if he himself pays the wholesaler only monthly, the stock of money required to carry this particular production process will be (after allowance for the retailer's own costs and profits) nearly one-twelfth of the annual money volume of sales of finished goods. This is especially clear with respect to agricultural products. Flour is sold throughout the year, but the wheat-growing farmer is usually paid only once a year; and the money stock required here is roughly equal to the (annual) sales value of the crop, if borrowing is ruled out.

When conditions of general change prevail, instead of the stable conditions here assumed, the *size* of the payments made at the intervals measured by d will vary; this variation is reflected in the $P \times Q$ term, and in M or b , or both. If, in addition, current collections are slow, this also increases the effective length of the aggregate production period as here defined (and hence diminishes R); and conversely. It is further likely, tho not necessary, that the change in R will be accompanied by a change in d .

fore follows that the foregoing equations, altho developed on the premise that there is only one producer and only one type of commodity, are equally valid when there are many different producers, and many different types of commodity from which the consumer may choose. The amount of money required to pay for a batch of the finished product of a given production process, at the end of the payment-interval involved, is the amount required to carry that particular process; and the sum of all these amounts for all the different kinds of production process taken together, plus consumers' reserve balances, is the requisite money stock for the country as a whole. No overlapping of different kinds of production process can result in any economy, any reduction in this total stock required. If money in some sense "jumps" from one production process to another,⁵ thus increasing the prices paid currently for the output of the second process, there will be a subsequent deficiency in the funds available to purchase the output of the first process. Prices there will fall proportionately; the aggregate $P \times Q$ term for the national output as a whole will be unchanged; and the size of the aggregate money stock required will not be affected.

The conclusions reached in the last two sections may now be summarized. Under the limiting general assumptions established at the outset (chiefly that there is no new saving or investment, and that the society remains generally "stable"), the value of the working capital required to carry a given annual money volume of production and sale varies inversely with the number of production periods per year, and also inversely with the number of payment-intervals per

5. As from a shift in the direction of consumers' current expenditures.

It should be pointed out that money cannot "jump" from one production process to another by being "re-lent," nor can its general efficiency be thus increased. When a bank apparently re-lends cash deposited with it, for example, what has really happened is that the total quantity of "money" in the society, under any reasonable definition of the term money itself, has been correspondingly increased. This can be seen at once by examining the bank's statement of its own current liabilities after the loan has been made; yet the point has given rise to much confusion in monetary writings. What takes place is a duplication of *lending power*, not of money.

production period (equation 9). The size of the stock of money needed to carry the process similarly varies inversely with these two factors, and also varies *directly* with the size of consumers' reserve balances (equation 15).

The reader will have observed that in setting up the expressions for the quantity of money and its circular velocity (equations 15 and 16), no separate allowance was made for friction or delay in the machinery for transferring money payments. As a matter of fact, payments are usually transferred with great speed under modern conditions, so that the allowance would in any event be small. The form of our equations is such, however, that they already include this allowance. Friction in the machinery for transferring payments operates to increase the interval which elapses between the time when the producer pays out a given block of money to meet current costs of production, and the time when he receives this money back in return for finished products sold. The friction thus increases the effective length of the production period, as we have here defined that term. That is, it diminishes the *rate* of production, R . But the term R is found both in the expression for the size of the money stock, and in the expression for circular velocity, as given in the equations just referred to; as R falls, M rises and C diminishes. Both expressions therefore allow for the effect of friction in transferring money payments.

V

The argument of the preceding sections rests on a number of severe limiting assumptions. Certain of the assumptions can now be removed, without impairing the validity of the conclusions hitherto reached. It is still necessary to suppose that the general position of the society is stable, that there is no new saving or hoarding, and that no other substantial change occurs. Introduction of the production and sale of producers' goods, however, and of "pure" services, can be effected without difficulty.

If the producers of consumers' goods use material equip-

ment purchased with money, but if there is no new saving in the society, these two conditions taken together evidently entail that the aggregate stock of equipment in the society must remain of constant size. Of course each piece of equipment must be kept in running order, and as it wears out must be replaced, but other things equal, the total annual output of finished consumers' goods which it helps to produce will not vary substantially in value from one year to the next. (This last proposition seems to postulate the absence of technical progress, but, as will be shown in a moment, the latter corollary does not follow.) The money *costs* which use of the equipment entails are part of the current costs of producing finished consumers' goods themselves. The price of the latter now covers not only direct labor and management, but also the maintenance and depreciation or amortization charges of the equipment itself. When a particular piece of equipment wears out, the amortization fund which has been accumulated against it will exactly suffice, if the amortization has been properly handled, to buy an equivalent piece of new equipment. Moreover, the price of the finished consumers' goods will also include the interest charge, if any, which recompenses the *former* saving previously invested in the equipment. Payment of this interest charge does not itself entail new saving, any more than does payment of depreciation charges or of wages, and hence does not violate our restricting assumption under the head of saving.⁶

Under these conditions, the scope of the aggregate production process which ends with the sale of finished consumers' goods is evidently extended. It now includes not only the

6. Various writers have included funds accumulated to buy equipment for *replacement* under the head of savings. For some purposes this practice is defensible, but here it could only lead to confusion. What is important is only, in the first instance, *new* saving and investment; it is this which disturbs general business. Once a given act of saving and investment has taken place, and barring other changes, the subsequent payment of interest and amortization charges do not in themselves entail any further disturbance.

Rent payments should also be included in the costs now covered by the price of finished consumers' goods. They can be regarded either as payment for an intangible commodity or a service (see below), or as a remuneration, analogous to capital charges, on the landlord's investment.

direct fabrication and marketing of the consumers' goods themselves, but also the fabrication of such producers' goods as are needed to keep the existing stock of equipment in running order and of constant size. But this extension does not alter in any way the main lines of the analysis already presented. The only change is that now not all of the money received from consumers, in return for finished consumers' goods sold, is paid out again to compensate the labor and management used directly in the fabrication of these goods. Some of it is paid, instead, to the producers of equipment. But the latter in turn use the money to pay their own bills for labor, management and the like. The money itself thus returns to the consumers in the aggregate, and completes its circular movement. The primary effect of the introduction of producers' goods is therefore simply to increase the duration of the aggregate process of production and sale of finished consumers' goods.⁷ The effect of this increase, however, is to increase in proportion that total value of working capital, and that total size of the money stock, which, other things equal, are needed to carry a given annual money volume of sales of finished consumers' goods.

As long as new saving and investment are barred out, these are the main results of the introduction of producers' goods which are purchased with money, and these are the main questions involved. One further primarily formal problem is definitely suggested by what has just been said, however, one which threatened to obtrude itself at various earlier points. The problem is this. Even if the *total* money volume of consumers' goods sold per year remains constant, may

7. Thus if a given piece of equipment does not wear out until it has been used in the production of 100 units of consumers' goods, one one hundredth of the time required to produce the equipment should be added to the time required for *direct* fabrication and sale of the consumers' goods themselves, in order to ascertain the length of the aggregate production period of the consumers' goods.

Where a number of different kinds of equipment are used, as is usually the case, the *average* length of time required to produce the different kinds should be utilized, after weighting according to their respective costs. The costs themselves are included as part of the costs of producing finished consumers' goods.

there not be shifts of demand from one kind of commodity to another, with corresponding shifts in values and prices; may not similar shifts then take place in the production of equipment; and are both changes not violations of the general premise, hitherto carefully maintained, that the society is "stable"? The answer to the first two questions is in the affirmative, but to the third is in the negative. Why the latter answer?

The point involved is evidently a question of the definition of terms, especially of the concepts of "equilibrium" and of "stability." For the purposes of the present paper, an essentially negative variety of definition is adequate. A "stable society," for these purposes, is one in which shifts of the sorts just mentioned may take place, but in which the shifts leave unchanged the *total* money volume of sales of finished consumers' goods, and the total stock of money and the value of working capital required. If these conditions are met, the shifts must also be of such character that the *average* values of R , b and d remain undisturbed. Assumptions of this order are self-consistent, and do not transcend the bounds of imaginable reality. It may also be pointed out that this definition is one which allows technical improvements to take place, without violation of the premise of "equilibrium." Such improvements can result in a decrease in prices and an increase of quantities of specific articles, or in a shift in the distribution of consumers' total money outlays, without themselves upsetting the constancy of the aggregate price-times-quantity term for the society's production as a whole.⁸

We now return to the main thread of the argument, the removal of the earlier limiting assumptions. We have already introduced producers' goods. The next step is the introduction of "pure" services, intangible commodities, and the like. Intangible commodities give rise to no particular difficulties. In this category fall, for example, the products of most public-utility enterprises. These products are in the very nature of

8. The improvements can be brought into use by incorporating them in new equipment purchased to replace that which is wearing out. Then no *additional* saving or investment is required, and the aggregate $P \times Q$ term for the society's production as a whole need not be affected.

the cases definitely measurable (as in ton-miles, cubic feet, gallons), and there are definite production processes and periods. The products themselves can hence be fitted easily into the general form of the equations already developed as producers' goods or as consumers' goods, according to the particular case.

"Pure" services are those services of doctors, lawyers, teachers, household servants and the like, whereof the remuneration does not enter into the price of any other tangible or intangible commodity.⁹ Here there are certain formal difficulties. Measures of the quantity of output can be devised, for example, on a time basis, but here there is usually no true production process or period, in the technical sense, which lasts over time. The services are usually "produced" as they are consumed, and it is therefore not immediately obvious how much money is needed to carry a given money volume of production of such services. The services are ordinarily not paid for currently, however, but only at intervals, and the size of the interval between successive payments provides a guide. We can treat the average interval between payments as being in effect the production period, say a month, and the number of such intervals per year as the term R . The term d is then equal to 1. The situation therefore reduces to the simple terms described in equation (8) above. The quantity of money needed to carry the production and sale of "pure" services is only the quantity sufficient to effect the necessary payment at the end of the "production" period; that is, it is equal to the annual money volume of sales, $P \times Q$, divided by the number of production or payment periods per year, R . The value of the "working capital" required also equals this sum; that is, W here equals M . Similar procedures can be applied to rentals and the intangible commodities (use of land or of space), for which they are the payment; here too there is no true production process, in the technical sense, which lasts over time.

9. When such services are rendered to a producer who later *does* include their cost in the price of his finished product, no especial problem arises.

The incomes and expenditures of governmental bodies also offer certain formal difficulties. Receipts of governments from borrowing can be excluded for the moment; since we are still assuming that there is no saving in the society, we need consider only receipts from taxation and their expenditure. Governmental expenditures for "pure" services — for the services of those individuals who are engaged in the work of police, justice, defense, legislation and the like (after allowing for fees) — can be treated like any other purchases of pure services. The taxpayer buys these services by paying taxes, however, so that the interval between payments in specific cases, and hence the effective production period, may be anything up to a year in length or more. Governmental expenditures on commodities are similarly like those of individuals and corporations, except that the interval between payments by the ultimate consumer is again likely to be longer than in the case of private operations. On both counts, the intervention of government finance thus makes the circular velocity of money less than it would presumably otherwise be, and the required stock of money hence larger.¹

Thus producers' goods, pure services, and governmental receipts and expenditures based on taxation, can all be incorporated in the equations developed in preceding sections, without disturbing the general form or the validity of the equations themselves.

VI

It has now been shown that given a modern society which is "stable" — one in which new saving and investment are not taking place, and in which no other major changes are

1. Treating governmental receipts in this way — treating governmental bodies as simply intermediaries between the taxpayer and the ultimate seller of commodities or pure services — is especially advantageous in handling the definition of the national income. With this treatment, it is still proper to regard the national income as the sum of the incomes received by individuals alone. The income of governments does not have to be added in as a separate category.

When the Government itself engages in business, and sells products to final consumers on a commercial basis, the government enterprises, to the extent that they do *not* receive support from the Government's other funds, should of course be treated like any private enterprise.

going on — the relations between the chief monetary categories are determinate, not accidental, and can be described in simple algebraic terms. With a given physical quantity of output and a given stock of money, for example, the levels of prices, the size of the national money income, and the like, are governed by the circular velocity of money; and this circular velocity is in turn governed by the average length of the production period, the average number of payment-intervals per production period, and the size of consumers' reserve balances of cash. These factors also establish the size of the society's necessary working capital.

On another occasion I hope to demonstrate that the validity of these concepts and relations is not impaired by the introduction of saving and investment, or of other major types of change, tho the forms of description of course become more complicated. Here, however, I shall not try to go beyond the essentially static and timeless conclusions thus far presented; nor, in particular, to examine the effects of monetary changes on the physical quantity of output and similar "underlying" magnitudes themselves.² The purpose of the present paper has been merely to establish and clarify certain fundamental monetary concepts, not to describe dynamic processes.

The omission of new saving and investment also makes it of uncertain value to attempt here statistical estimates of the actual size of the less familiar terms used in the preceding equations, tho certain guesses were made for illustrative purposes in the text above. In particular, there is little direct evidence on the size of the terms R , b and d . As will be recalled from equation (16), however, these latter terms in combination determine the circular velocity of money. A rough statistical approximation of the value of this circular velocity can easily be made for the United States. Evidence of two sorts can be utilized, as follows:

2. See, however, my paper on "Monetary Prerequisites for Employment Stabilization," delivered before the American Association for the Advancement of Science, December 28, 1932; reprinted in *The Stabilization of Employment* (edited by C. H. Roos: Bloomington, 1933).

First, suppose that there is no new saving and investment. Then the national income (NI) equals the national expenditure on finished consumers' goods (NE); and from equation (2) we can write, under this assumption:

$$C = \frac{NI}{M} \quad (20)$$

In actual societies, of course, this equation is not valid. Current new savings must in fact be subtracted from NI , and a corresponding correction must be made in the M term for money currently tied up in the saving and investing process.³ But it is not unreasonable to assume that *over time* these two corrections are roughly equivalent, since over time the volume of new saving and the volume of new investment are roughly equal. Over time, that is, the approximate average value of C is given by the preceding equation. For the United States, substitution of the available data for the terms NI and M in the above equation yields a value for C which stood at 1.76 per year in 1909, and which fell steadily (except for

3. A first approximation to a more nearly correct equation, in place of equation (2) above, can be obtained as follows. Let M be again the average size of the money stock outstanding in a given period; M' the quantity of money tied up in the saving and investing process at the outset of the given period; and S and I , respectively, the additional new saving and new investment which take place during the given period. Assume that S and I are distributed evenly through the period. Let NE , as before, be total national expenditure on finished consumers' goods; and let NI be total national money income, so that NI equals NE plus S . We then have:

$$\left(M - M' - \frac{S}{2} + \frac{I}{2}\right) \times C = P \times Q = NE = NI - S; \quad \text{or,} \quad (21)$$

$$\left(M - M' - \frac{S - I}{2}\right) \times C = P \times Q = NE = NI - S. \quad (22)$$

If the first and last expressions be solved for NI , we have:

$$NI = \left(M - M' - \frac{S - I}{2}\right) \times C + S. \quad (23)$$

Note that the quantity $(S - I)$ for a given base period, at the outset of which M' is known, is the increment which should be added to M' , at the outset of the next period, to obtain M'_1 .

Space limitations prevent any attempt to defend these equations here; they are offered merely as suggestions.

the war period) to 1.51 in 1928.⁴ The fluctuations of the annual values from their general trend correspond roughly to the fluctuations in general business conditions, as we should expect. The downward trend itself is presumably to be accounted for by the increasing structural complexity and geographic extent of American business, which have slowed down the velocity of money through the aggregate production process; and by the fact that with growing prosperity the relative size of consumers' reserve balances has doubtless increased.

Second, values for C can be interpolated between the annual figures thus secured by utilizing the current data on the exchange velocity of money, or its "velocity of circulation" in the usual sense. As shown in connection with equation (3) above, *when the quantity of money is held constant*, the fluctuations of exchange velocity provide a fairly accurate guide to the short-run fluctuations of circular velocity, since in short periods the latter are the chief cause of the former. To obtain data on the short-period relative changes in C , it is therefore only necessary to construct an index of exchange velocity, V , which is "deflated" for changes in the quantity of money itself.⁵

4. Data for national income from W. I. King, *The National Income and Its Purchasing Power* (New York, 1930), p. 74; King's "imputed" income is excluded. Data on cash and net bank deposits from the Reports of the Comptroller of the Currency, as of the mid-year reporting date. Data on other kinds of "money" are not obtainable. The values for the annual circular velocity of money, C , which are then obtained from equation (26) are:

1909	1.76	1916	1.64	1923	1.58
1910	1.72	1917	1.68	1924	1.54
1911	1.70	1918	1.80	1925	1.51
1912	1.70	1919	1.68	1926	1.52
1913	1.73	1920	1.64	1927	1.51
1914	1.64	1921	1.53	1928	1.51
1915	1.67	1922	1.50		

More recent comparable estimates of the national income are not yet available.

5. If saving and investing be ignored, the expression is:

$$C_1 = C_0 \times \frac{V_1}{V_0} \times \frac{1}{M_1} \quad (24)$$

In actuality, however, the term V is seriously affected by transactions

Of the factors which themselves determine the size of C (see equation 16, above), none is directly measurable from the data now available. But two presumably change only slowly: namely, the number of production periods per year, R , and the relative length of the payment-interval, which is measured by d . Then apparently the actually wide short-run fluctuations in C , which appear even after rough allowance has been made for the effects of changes in the quantity of money and in the volumes of new saving and investment, must come chiefly from fluctuations in the size of consumers' reserve balances, which are measured by b . It is impossible to undertake here, however, any discussion of the problems raised by these considerations.

Finally, space limitations also prevent a comparison of the conclusions reached above with those to be found in the current literature of monetary theory. The similarities and differences, however, are in any event of a fairly obvious sort. in securities and other titles and claims, which from time to time swell it out of all proportion to current changes in the production and sale of commodities and services. This is of course especially true of statistics which include New York banks. It would therefore be better to use "outside" figures in computing V .

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MONEY, GOLD, AND INCOME IN THE UNITED STATES, 1921-32¹

SUMMARY

I. Description of method of compilation of an annual series of money, 77.—II. Reliability of various banking series as indexes of change in the money supply, 87.—III. Money supply amenable to Federal Reserve control, 88.—IV. Time deposits, 89.—V. Money, incomes and income velocities, 91.—VI. Money and gold, 92.

I

THE SUPPLY OF MONEY IN THE UNITED STATES, 1921-32²

Altho monetary discussions abound in figures which purport to show the changes in the money supply of the country, there are no figures which are really satisfactory. This is mainly due to the paucity of the available material. Such material as exists, however, has been neglected. I know of only two serious attempts to derive a series of money, those of Mr. Carl Snyder,³ and of Mr. Y. S. Leong,⁴ and in each case the series was carried only up to 1926. Mr. Snyder's method is not disclosed but his figures are, I think, too high. Both Mr. Leong's method and figures differ from those presented below.

The Comptroller of the Currency presents detailed statements of practically all of the banks in the country as of June 30 each year. The main difficulty encountered in using these statements is that of determining the relative amounts of demand and time deposits in the unclassified

1. I am indebted to the Committee on Research in the Social Sciences of Harvard University for grants which made this study possible and to the Committee staff for advice on various points. I am also indebted to Mr. M. C. Heins for assistance on questions of statistical method.

2. Throughout this paper the word "money" indicates all means of payment in the form of adjusted demand deposits and cash outside banks.

3. Presented in Wesley C. Mitchell, *Business Cycles*, p. 126.

4. *Journal of Political Economy*, October, 1929, pp. 583-603.

deposits which in some years exceeded seven billion dollars. Mr. Leong dealt with these deposits by distributing "the 'deposits not classified' of the various classes of banks separately in accordance with the percentages of deposits subject to check to the total classified individual deposits of the different classes of banks."⁵ There does not appear to be any very strong logical justification for this procedure. As will be pointed out below, there is evidence that practically all the unclassified deposits are in country state banks and trust companies. Mr. Leong's method in effect tends to distribute country state bank deposits in the same proportion as those of city state banks, altho in fact they are composed quite differently. Moreover, in using this method Mr. Leong was led to overlook the fact that the great bulk of the unclassified deposits of national banks up to 1926 in the Comptroller's Reports are classed as demand deposits in the Federal Reserve Reports. The method followed in this paper is to approach the problem from the viewpoint of member and non-member banks, rather than from that of the separate classes of national and state banks, trust companies and so on.

Detailed statements of member banks of the Federal Reserve System are available for three or four call dates a year. Two of these calls are always at the end of June and December, while the others vary. To obtain a series of deposits subject to check it is necessary to make certain adjustments to the item of demand deposits. Certified checks, when issued by a bank, are deducted from demand deposits. For our purposes, they should be added to the stated demand deposits. Similarly cash letters of credit and travellers' checks are often deducted. I believe that practice differs in this respect, but as the item is very small, I have followed the usual custom of adding the amount to demand deposits. United States government deposits, in so far as they are demand deposits, should likewise be included. From the total of gross demand deposits thus obtained should be deducted all checks in process of collection. These checks, while they have been listed as deposits by the receiving banks,

5. *Journal of Political Economy*, October, 1929, p. 593.

have not as yet been deducted from deposits by the paying banks. The resultant from these various adjustments may conveniently be called adjusted demand deposits (Table I, Column XV).

The statements of condition of member banks separate the figures for national and state member banks. It is possible, therefore, by subtracting the total time and gross demand deposits of state member banks from the total deposits of all state banks (excluding savings banks) to obtain the gross deposits of non-member state banks (Column III).⁶ We thus arrive at the gross deposits of all non-member banks (except savings banks), made up of time deposits, gross demand deposits, and unclassified deposits.⁷ The problem of obtaining a reliable June 30 series of money is, as was said at the outset, mainly a problem of obtaining a proper distribution of these unclassified deposits, which in some years comprised over 70 per cent of the total non-member commercial banks' deposits.

The method of distributing the unclassified deposits here adopted is as follows. In 1921 the unclassified deposits amounted to the comparatively low figure of two billion dollars, so that it is possible to state definitely that time deposits comprised 34.3 per cent to 59.6 per cent of total deposits. In 1929, when all the deposits were classified, time deposits of non-member commercial banks comprised 46.2 per cent of the total. It appears extremely unlikely that time deposits, expressed as a percentage of total deposits, would have suffered a decline in this period, for this would have been counter to the trend discernible for all classes of banks for which data are available. The range of probable

6. In making this calculation it is unfortunately necessary to take gross demand deposits since, in working over the figures, it was discovered that checks in process of collection of state member banks exceeded checks in process of collection of *all* state banks. Apparently the explanation is that in the Comptroller's Reports of all state banks a large proportion of checks in course of collection must be concealed in the item "due from banks."

7. There are a negligible number of private banks which do not report their condition. No allowance is made for their deposits in this study.

percentage compositions for 1921 is, therefore, narrowed down to between 34.3 per cent and 46.2 per cent. Now, tho all the banking series we possess show a relatively larger growth of time deposits than of demand deposits for the period 1921-29, the *rate* of relative increase differs for different classes of banks. The most logical procedure, therefore, would appear to be to ascertain the rate of increase of those banks for which we possess data and which most closely resemble non-member commercial banks. The great bulk of the non-member commercial banks are small country banks, as is indicated by their average deposits of less than half a million dollars in 1921. Fortunately data are available for a nearly similar class of banks, the country state member banks.⁸ Time deposits of country state member banks, expressed as a percentage of total gross deposits, increased from 48.5 per cent in 1921 to 54.5 per cent in 1929 (Column IV). Time deposits of non-member commercial banks in 1929 comprised 46.2 per cent of the total deposits. If the same *rate* of increase had prevailed for non-member commercial banks as for country state member banks, time deposits would have comprised 41.2 per cent of the deposits of non-member commercial banks in 1921. This percentage is nearly midway in the range of probability given above. We may now calculate the same relative changes in the percentage composition of deposits of non-member commercial banks as prevailed in the deposits of country state member banks. The result is given in Column V. These percentages, applied to the gross deposits of non-member commercial banks, yield the estimated time deposits (Column VI). Gross demand deposits are obtained by subtracting these figures from gross deposits (Column VII). It is not at all likely that there is an *exact* correspondence between these results and the actual figures; yet I feel that the assumptions on which the estimates are made — that the time deposits of non-member state banks increased relatively to demand deposits from 1921 to 1929, and the rate of relative increase was similar to that of country state member banks — are sufficiently valid to

8. Abstract of Member Bank Condition Reports.

make the estimates fairly close approximations to the truth. For the years after 1929 the very small item of unclassified deposits has been distributed according to the percentages which time and demand deposits bore to total deposits.

The figures of gross demand deposits of non-member commercial banks must be further adjusted for checks in course of collection. Proceeding on the assumption that the non-member banks closely resemble country state member banks, I applied the same per cent to the first group (non-member banks) which checks in course of collection bore to gross demand deposits for the second group (country state member banks) (Columns VIII, IX). The resulting figures were then subtracted from the gross demand deposits of non-member commercial banks in order to obtain adjusted demand deposits (Column X).

Finally it is necessary to add to the figures of adjusted demand deposits of non-member commercial banks the demand deposits of stock and mutual savings banks. Unfortunately we are here again presented, for some years, with the problem of distributing unclassified deposits. The overwhelming bulk of the deposits of such banks are, of course, savings deposits, and yet the wide variations of demand deposits in the years in which there were unclassified deposits suggest that part of such deposits should be included in demand deposits. In default of a better method, I have taken the stated figures of demand deposits in 1921, 1923 and 1927, when the items of unclassified deposits were comparatively small, and by straight line interpolation derived the figures for the intervening years (Column XI). This is not very satisfactory, but I think it is safer than relying upon the stated demand deposits for 1922, and 1924 to 1926 inclusive. In any case, the amount involved is small and the probable error cannot affect in any appreciable degree the final figures of money supply. Gross demand deposits of savings banks, thus ascertained, were then adjusted by deducting the amount of checks in course of collection, estimated in the same manner as for non-member commercial banks (Columns XII, XIII). The resulting figures were then

TABLE I
THE MONEY SUPPLY OF THE UNITED STATES, JUNE 30, 1921-32
(000,000 omitted)

	I Total Gross Deposits of State and Private Commercial Banks	II Total Gross Deposits of State Member Banks	III Total Gross Deposits of Non-Member Commercial Banks (I-II)	IV Per Cent of Time Deposits to Gross Deposits of Country State Member Banks	V Estimated Per Cent of Time Deposits to Total Deposits of Non-Member Commercial Banks (III-VI)	VI Time Deposits of Non-Member Commercial Banks (III-VI)	VII Gross Demand Deposits of Non-Member Commercial Banks (III-VI)
1921...	16,838	7,646	9,192	48.5	41.2	3,796	5,396
1922...	16,871	8,575	8,296	48.7	41.4	3,443	4,853
1923...	18,239	9,379	8,860	49.4	42.0	3,730	5,130
1924...	19,798	10,182	9,616	51.0	43.3	4,173	5,443
1925...	21,510	11,413	10,102	50.6	43.0	4,354	5,748
1926...	22,381	12,036	10,345	51.4	43.7	4,531	5,814
1927...	23,789	12,348	11,441	52.2	44.3	5,080	6,361
1928...	24,193	12,224	11,969	53.8	45.7	5,482	6,487
1929...	24,398	12,873	11,525	54.5	46.2	5,336	6,189
1930...	24,313	13,134	11,179	....	....	5,226	5,953
1931...	21,346	12,157	9,189	....	....	4,521	4,678
1932...	15,501	9,126	6,375	....	....	3,197	3,178

TABLE I (Continued)

	VIII "Float" of Country State Member Banks as a Percentage of Gross Deposits	IX "Float" of Non-Member State Commercial Banks (VII×VIII)	X Adjusted Demand Deposits of Non-Member Commercial Banks (VII-IX)	XI Demand Deposits of Stock and Mutual Savings Banks	XII "Float" of Stock and Mutual Savings Banks (XI×VIII)	XIII Adjusted Demand Deposits of Stock and Mutual Savings Banks (XI-XII)
1921.....	3.5	194	5,202	182	7	175
1922.....	3.7	184	4,669	155	6	149
1923.....	4.2	221	4,909	127	5	122
1924.....	4.3	239	5,204	149	6	143
1925.....	4.5	264	5,484	171	8	163
1926.....	4.5	267	5,547	193	9	184
1927.....	5.1	331	6,030	215	11	204
1928.....	4.7	311	6,176	222	11	211
1929.....	5.8	365	5,824	318	19	299
1930.....	5.4	327	5,626	141	8	133
1931.....	5.1	243	4,435	128	7	121
1932.....	5.2	168	3,010	84	4	80

TABLE I (Continued)

	XIV Adjusted Demand Deposits of All Non-Member Banks (X+XIII)	XV Adjusted Demand Deposits of Member Banks	XVI Adjusted Demand Deposits of All Banks (XIV+XV)	XVII "Deposit Currency," Leong's Estimate	XVIII Deposits Subject to Check Snyder's Estimate (in billions)	XIX Cash Outside Banks	XX Total Money Supply (XVI+XIX)
1921...	5,377	12,635	18,012	16,450	19.63	3,985	21,997
1922...	4,818	13,278	18,096	16,414	20.47	3,649	21,745
1923...	5,031	13,858	18,889	17,194	22.11	4,046	22,935
1924...	5,347	14,052	19,399	18,206	23.53	3,949	23,348
1925...	5,647	15,365	21,012	20,035	25.98	3,877	24,889
1926...	5,731	15,976	21,707	19,920	25.57	3,910	25,617
1927...	6,234	16,228	22,462	....	....	3,866	26,328
1928...	6,387	16,351	22,738	....	....	3,930	26,668
1929...	6,123	16,621	22,744	....	....	3,947	26,691
1930...	5,759	16,279	22,038	....	....	3,868	25,706
1931...	4,556	15,562	20,118	....	....	3,957	24,075
1932...	3,090	12,781	15,871	....	....	4,905	20,776

added to the adjusted demand deposits of non-member commercial banks (Column XIV). These in turn were added to the adjusted demand deposits of member banks to obtain the final series of adjusted demand deposits of all banks (Column XVI). Leong's and Snyder's estimates are presented in Columns XVII and XVIII.

To secure total means of payment it is finally necessary to include cash in circulation. These figures for June 30 may be obtained directly from the Comptroller's Reports (Column XIX). Strictly they are figures for cash which has been paid out by banks and not retired. Because of destruction and the use of American cash abroad, they undoubtedly tend to overestimate the amount of cash in circulation.⁹ In addition it should be noted that June 30 comes on a different day in the week each year and as there is a daily variation in cash outstanding, this fact may affect the series slightly for the purposes of year to year comparisons. Adding these figures to those of adjusted demand deposits gives a series of the total money supply of the United States (Column XX).

The Federal Reserve Board collects and publishes statistics of the total deposits of all banks in the country for the call dates on which detailed statistics on member banks are available. If the series were strictly comparable with the Comptroller's June 30 series, it would be possible to derive a call date series of money supply. Unfortunately, however, there are discrepancies between the series, the Reserve Board's figures for deposits usually amounting to somewhat less than the Comptroller's. I have been informed that efforts to make these series comparable are now in progress. Since the Reserve Board is now collecting some statistics for all banks on the member bank call dates, it is earnestly to be hoped that it may secure and publish a more detailed classification of deposits, checks in course of collection, and vault cash, from which a reliable and fairly frequent series of the money supply of the country might be easily calculated.

9. The steady decline of the Treasury Notes of 1890 until there is now a negligible amount outstanding tends to indicate that the destruction and loss of cash is not of considerable magnitude.

TABLE II
PERCENTAGE CHANGES OF VARIOUS INDEXES OF THE SUPPLY OF MONEY, JUNE 30, 1921-32¹

	I	II	III	IV	V	VI	VII	VIII
	Money Supply	Adjusted Demand Deposits All Banks	Adjusted Demand Deposits Member Banks	Net Demand Deposits of Member Banks	Net Demand Deposits of Reporting Member Banks	Total Loans and Investments All Banks	Loans and Investments Member Banks	Loans and Investments of Reporting Member Banks
1922.....	-1.1	+0.5	+5.1	+8.5	+9.3	-0.1	+0.3	-0.8
1923.....	+5.5	+4.4	+4.4	+3.4	+0.3	+9.5	+9.6	+7.8
1924.....	+1.8	+2.7	+1.4	+4.8	+5.3	+3.3	+2.5	+2.4
1925.....	+6.6	+8.3	+9.3	+8.5	+8.7	+8.1	+8.7	+10.9
1926.....	+2.9	+3.3	+4.0	+2.9	+2.1	+5.6	+5.6	+5.1
1927.....	+2.8	+3.5	+1.6	+2.4	+2.6	+4.2	+5.0	+4.6
1928.....	+1.3	+1.2	+0.8	-0.3	+0.3	+6.5	+7.0	+7.6
1929.....	+0.1	.0	+1.7	-1.1	-3.3	+2.1	+1.9	+0.8
1930.....	-3.7	-3.1	-2.1	+1.0	+4.8	-0.6	-0.2	+3.6
1931.....	-6.3	-8.7	-4.4	-4.2	-1.5	-5.3	-4.9	-2.5
1932.....	-13.7	-21.1	-17.9	-21.1	-18.6	-16.3	-17.5	-15.9

Annual

Increase								
1921-29.	2.4	3.0	3.5	3.6	3.1	4.9	5.0	4.7

¹ Columns I, II, and III were derived from Table I. The remaining columns were calculated from data in the Annual Reports of the Federal Reserve Board.

II

RELIABILITY OF VARIOUS BANKING SERIES AS INDEXES OF
CHANGES IN THE MONEY SUPPLY

Owing both to the absence of any official series of figures for "money" and to the confusion as to what constitutes money, various banking series are currently used in this country as indexes of changes in the money supply.¹ In Table II the annual percentage changes of the series most frequently used are presented along with the percentage changes in the money supply and adjusted demand deposits from Table I. It will be noted that the various series of net demand deposits and loans and investments are completely unreliable as indexes of the money supply. Loans and investments, which are most frequently used, grossly exaggerate the rate of expansion of the money supply up to 1929, and minimize the contraction from 1929 to 1931.

The data from which a reliable index of money may be calculated do not become available to the public until nearly a year after the single annual date to which they apply.² Net demand deposits of all and "reporting" member banks are reported monthly and weekly respectively and would, therefore, be a most valuable series if they were reliable indexes of money. Unfortunately, for the short period they appear to be completely unreliable and misleading. Data from which adjusted demand deposits of member banks may be calculated become available some three months after each of the three or four call dates a year. In default of anything better this is the most reliable index of changes in the supply of money, but it may at times be misleading, e.g., in 1921-22, 1928-29, and 1929-31. A monthly series of adjusted demand deposits of all banks and cash outside banks is urgently needed to dispel the guesswork, misunderstanding and confusion which at present result from the citation and use of so many various and unreliable banking series.

1. I have elsewhere argued that the ambiguity of the term "credit" has been largely responsible for this confusion. *Journal of Political Economy*, February, 1933, pp. 58-79.

2. The Comptroller of the Currency will supply the data earlier on request.

III

MONEY SUPPLY AMENABLE
TO FEDERAL RESERVE CONTROL

There has recently occurred a good deal of discussion of the advisability of extending the scope of the Federal Reserve System to cover all the banking resources of the country. Table III shows the per cent of adjusted demand deposits of the member banks of the system to the total adjusted demand deposits of the country and to the total money supply. It will be seen that for the period 1922-30 the system embraced nearly three-quarters of the adjusted demand deposits. Recently, owing mainly to the relatively higher mortality rate among non-member banks, the fraction has increased to over four-fifths.

TABLE III

PER CENT OF ADJUSTED DEMAND DEPOSITS OF MEMBER BANKS
TO (A) TOTAL ADJUSTED DEMAND DEPOSITS, (B) TOTAL MONEY,
JUNE 30, 1921-32

	A	B
1921.....	70.1	57.4
1922.....	73.4	61.1
1923.....	73.4	60.4
1924.....	72.4	60.2
1925.....	73.1	61.7
1926.....	73.6	62.4
1927.....	72.2	61.6
1928.....	71.9	61.3
1929.....	73.1	62.3
1930.....	73.9	63.3
1931.....	77.4	64.6
1932.....	80.5	61.5

The figures in Column B, which are the percentages of adjusted demand deposits of member banks to total money, are lower than those in Column A because of the inclusion in Column B of all cash outside banks. It may be objected that a substantial proportion of the cash outside banks consists of Federal Reserve notes, which, being issued by the reserve banks, should be included with the demand deposits of the system. From the viewpoint of control, however, this pro-

cedure would not be justifiable. In a predominantly deposit-using country the central bank can exercise only a very remote control over the total volume of cash outside banks. Its note issuing function, in other words, is almost entirely passive.

One conclusion that might be drawn from this table is the necessity of the reserve administration having a high degree of control over the member banks' demand deposits in order to offset movements in the supply of money outside its control, if those movements are not in accord with its general policy. A case in point is offered by the experience of 1930 when the money supply decreased by nearly twice the rate of decline of member banks' demand deposits. A necessary prerequisite of better control is, of course, more adequate statistics of the movements of money outside the system.

IV

TIME DEPOSITS

The method used for obtaining in Table I a series of adjusted demand deposits makes possible also the compilation of a series of time deposits. In Table IV is presented such a series for non-member banks, savings banks, and member banks, as of June 30, 1920-32. It will be observed that in the period covered by this study the secondary function of banks as middlemen for the investment of part of the community's savings became quantitatively more important than the banks' primary function of supplying the community's money. By 1932 over 60 per cent of the deposits represented savings. It is unfortunate that the different character of these functions should so frequently be forgotten and that savings deposits should be lumped together with demand deposits as money. To this fact, more than any other, may be traced the erroneous conclusions regarding the changes in the money supply. Changes in the form which savings initially take may occur independently of changes in money and may not even indicate any changes in the aggregate amount of saving. If savings deposits are included in money, important decisions relating to banking policy may be made merely because of a

TABLE IV
TIME DEPOSITS, JUNE 30, 1921-32
(000,000 omitted)

	I Time Deposits of Non-Member State Commercial Banks	II Time Deposits of Savings Banks	III Time Deposits of Member Banks	IV All Time Deposits	V Total Deposits	VI Per Cent of Time Deposits to Total Deposits
1921.....	3,786	5,834	6,367	15,997	34,009	47.0
1922.....	3,443	7,081	7,175	17,649	35,745	49.4
1923.....	3,730	7,769	8,378	19,877	38,766	51.3
1924.....	4,173	8,293	9,204	21,670	41,069	52.8
1925.....	4,354	8,900	10,381	23,635	44,647	52.9
1926.....	4,531	9,406	11,173	25,110	46,817	53.6
1927.....	5,080	9,523	12,210	26,813	49,275	54.4
1928.....	5,482	10,012	13,439	28,933	51,671	56.0
1929.....	5,336	10,134	13,325	28,795	51,539	55.9
1930.....	5,226	10,466	13,812	29,504	51,542	57.2
1931.....	4,521	11,116	13,515	29,152	49,270	59.2
1932.....	3,197	10,929	10,636	24,762	40,633	60.9

change in the forms in which saving occurs. If we accept the estimate that normally we save about one-seventh of our national income,³ it would follow that for some years of the period under investigation about 20 per cent of the saving took the form of savings deposits. If this proportion had held in 1928-29, an annual expansion of over two and a half billion dollars in savings deposits would have resulted. It is not difficult to imagine the consternation which the apparent expansion of "credit" (in its common meaning of total deposits or total loans and investments) of over 5 per cent per annum would have caused.

V

MONEY, INCOMES AND INCOME VELOCITIES

The monetary income of a community in any period may be viewed broadly as the resultant of two factors, the amount of money and the number of times it is paid over to income receivers. Hence, given figures of income and money, we need only divide the former by the latter to obtain the income velocity, or to use Professor Schumpeter's phrase, income frequency. For an accurate calculation of income velocity it is necessary to ascertain the average amount of money outstanding during a year. Unfortunately at present we can only ascertain the amount as of one day in the year. This day, however, has at least the virtue of being exactly in the middle of the year and the banking series available for that time do not appear to be either at the trough or crest of any pronounced seasonal variation. It seems probable, therefore, that the money outstanding June 30 is a fairly close approximation of the average amount outstanding throughout the year. For purposes of comparison not of yearly changes but of changes over a period of years, the error due to the failure of the June 30 figures to equal the yearly average should be very small. In Table V, Column III the amount of money as calculated in Table I is divided into Professor M. A. Copeland's series of national income, giving income velocities for the years 1921-30. Columns IV, V and VI show the percent-

3. W. C. Mitchell, *Business Cycles*, p. 153.

TABLE V
MONEY AND INCOMES, 1921-30

	I National Income ¹ (in billions)	II Money (in billions)	III Income Velocity I+II	IV Percentage Change in Income Velocity	V: Percentage Change in Money	VI Percentage Change in Income
1921.....	62.1	22.0	2.82	....	....	....
1922.....	65.5	21.7	3.02	+7.1	-1.4	+5.5
1923.....	74.4	22.9	3.25	+7.6	+5.5	+13.6
1924.....	75.9	23.3	3.26	+0.3	+1.7	+2.0
1925.....	80.5	24.9	3.23	-0.9	+6.9	+6.1
1926.....	84.7	25.6	3.31	+2.5	+2.7	+5.2
1927.....	86.8	26.3	3.30	-0.3	+2.8	+2.5
1928.....	89.2	26.7	3.34	+1.2	+1.5	+2.8
1929.....	92.9	26.7	3.48	+4.2	+0.0	+4.1
1930.....	85.4 ²	25.7	3.32	-4.6	-3.7	-8.1
1931.....	....	....	....	....	....	....
Annual Rate of Increase						
1921-23.....	9.5	2.0	7.4			
1923-26.....	4.4	3.8	0.6			
1926-29.....	3.1	1.4	1.7			
1923-29.....	3.8	2.6	1.1			
1921-29.....	5.1	2.4	2.7			

¹ Morris A. Copeland, *Journal of Political Economy*, December 1932, p. 773.

² Due to the round numbers with which we are here dealing these percentages differ slightly from those in Table II.

³ Preliminary.

age annual changes of income velocities, money, and incomes, respectively. To this table has been appended the annual average rates of changes in these series for various periods.

Table V throws light upon the magnitude of the changes in some of the fundamental monetary factors in the post-war period. In particular it has bearing upon "the great wave of credit expansion," and "enormous increase in the activity of bank deposits," "the absorption of credit in speculation," and the general "inflationary character" of the period up to 1929 of which one reads so constantly. As, however, the purpose of this paper is to present data rather than to treat of controversial questions regarding banking policy, I shall content myself with arranging the data in what appears to be the most significant form.

VI

MONEY AND GOLD

The controversy that has centered around the American gold policy in the post-war period has been due partly to the absence of a reliable series of money and partly to the ambiguity of such concepts as "sterilization of gold" and "automatic" and "managed" gold standards. Perhaps the most common understanding of an automatic gold standard is one in which inflows and outflows of gold are accompanied by proportionate increases and decreases in money. Under such a standard the reserve ratio of gold to money would remain absolutely constant. In Table VI there is presented series of money and gold, the ratio of gold to money and the annual percentage changes in both series.⁴ It will be observed that only in two of the years, 1925-27, did money and gold change approximately directly and proportionally. In six of the years the relationship was inverse; in five, direct. If "sterilization" be understood as a rise in the money-gold ratio it will be observed that there were two periods of sterilization

4. Mr. H. R. Bowser has recently calculated an entirely different series of ratios of gold to "credit" by including in credit all money in circulation plus demand deposits plus savings deposits plus loans made to brokers by others than banks. "The Gold Percentage," *Review of Economic Statistics*, May 1933, pp. 82-96.

TABLE VI
ACTUAL AND PERCENTAGE CHANGES IN GOLD AND MONEY, 1921-32
(000,000 omitted)

	I Money June 30	II Monetary Gold Stock June 30	III Percentage Changes in Money	IV Percentage Changes in Gold	V Gold as a Per Cent of Money	VI Percentage Change in Income	VII Percentage Changes in Average Monetary Gold Stock
1921...	21,997	3,275	....	....	14.9	....	....
1922...	21,745	3,785	-1.1	+15.6	17.4	+5.5	+15.5
1923...	22,935	4,050	+5.5	+7.0	17.7	+13.6	+6.8
1924...	23,348	4,488	+1.8	+10.8	19.2	+2.0	+9.3
1925...	24,889	4,360	+6.6	-2.9	17.5	+6.1	-1.3
1926...	25,617	4,447	+2.9	+2.0	17.4	+5.2	+1.6
1927...	26,328	4,587	+2.8	+3.1	17.4	+2.5	+2.5
1928...	26,668	4,109	+1.3	-10.4	15.4	+2.8	-7.8
1929...	26,691	4,324	+0.1	+5.2	16.2	+4.1	+1.7
1930...	25,706	4,535	-3.7	+4.9	17.6	-8.1	+4.5
1931...	24,075	4,956	-6.3	+9.3	20.6	....	....
1932...	20,776	3,919	-13.7	-20.9	18.8	....	....

in the post-war years. The first was from 1921 to 1924.⁵ The second period was from 1928 to 1931. There were profound differences between these periods. In the first a considerable expansion of money took place and the rest of the world was for the most part off the gold standard. In the second period the money supply contracted substantially and the rest of the world was for the most part on the gold standard. A large part of the explanation of the breakdown of the gold standard in 1930-31 can be deduced from the rise in our money-gold ratio in this period. The period 1924-28 was one of "offsetting" rather than "sterilization." It must be emphasized that the preceding discussion has been confined to the facts and gives no basis for inferences as to conscious policy.

It is possible to understand by an "automatic" standard one under which there is a constant relation, not between gold and money, but between gold and money incomes. The current theory of international trade adjustment under the gold standard treats only of gold flow and changes in money as means of bringing about changes in incomes. There has, therefore, been added to Table VI series of percentage changes in annual incomes and the average annual monetary gold stock. There has been very little correspondence between changes in gold and incomes in the post-war period.

It is important not to place too much emphasis on these figures. The mild degree of sterilization of gold shown in 1929, for example, does not indicate the drastic efforts of central banks throughout the world to prevent gold flow to this country. In other words, if foreign banking systems are determined and able to prevent loss of gold it is quite possible for a large country to exert a strong deflationary influence on world prices without gaining any gold at all.

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5. It is almost certain that the ratio was at its lowest point in 1920 tho reliable figures for money are not available for that year.

THE TAXATION OF REAL ESTATE: A SURVEY OF RECENT DISCUSSION

SUMMARY

Introduction; the interest in real estate taxes, 96.— I. Causes of this interest: depressed conditions, 97; rising taxes, 97; the "real" burden of taxes, 98.— II. The question of disproportionate burden; the popular opinion, 100; the problem of measurement: the methods used, 101; their defects, 102; capitalization, 103; benefit considerations, 110.— III. The question of relative burden on rural and urban property, 115.— IV. The case for tax reduction; rigidity; discriminatory assessment, 116; the "obligation of payment," 118; some obstacles, 118.— V. Some methods of relief; curbing expenditures, 120; alternative taxes in general, 121; the income tax, 122; exemption of buildings, 123.— VI. The proposal of an increment tax, 124.— VII. The proposal of a change in the character of taxes; Professor Kendrick's suggestions, 125.— VIII. Conclusions, 127.

RECENT LITERATURE ON REAL ESTATE TAXATION

This paper is a survey of recent literature dealing with certain aspects of real estate taxation. It is thus a survey of the present status of economic opinion and knowledge concerning what, from the point of view of revenue yield, is the most important of all the American taxes, for the property tax produces roughly one-half of the total tax revenue of all the governments of the country.

The literature here discussed has appeared chiefly in the post-war period. Before the war economists other than Single Taxers seemed on the whole to have accepted the existing status of this tax in our revenue system and, treating it as a part of the prevailing general property tax, devoted themselves largely to such technical aspects as administration and assessment. Recently, however, attention has shifted to larger and more fundamental questions—burden, equity, economic effects and relief. There has grown up an extensive literature—books, articles, special monographs, special studies by agricultural experiment stations, by the United States Bureau of Agricultural Economics, and by special commis-

sions. Probably the most notable documents by the latter are the Report of the New York State Commission for the Revision of the Tax Laws, of the New Jersey Commission to Investigate County and Municipal Taxation and Expenditures, and of the Committee on Taxation of President Hoover's Conference on Home Building and Home Ownership.

I. WHY THE INTEREST IN REAL ESTATE TAXATION?

Some explanation of the emergence of this volume of writing on the subject in the post-war period is in order. One cause is, of course, the crisis in real estate brought on by depression and deflation. All fixed charges — interest and amortization as well as taxes — become exceedingly burdensome under a declining price level. The increase in burden of taxes on farms and agricultural rents as a result of recent deflation is interestingly demonstrated by the recent volume on Prices by Professors Warren and Pearson of Cornell University.¹ Deflation brings not only heavier tax burdens, but also a series of events leading to governmental fiscal crisis — mounting tax delinquencies, foreclosures on homes and farms for taxes, local budget deficits from shrinking revenues, increasing tax rates in turn, loss of banking confidence in state and municipal credit, threatened and actual moratoria on government debt and interest payments. Such are the phenomena of the crisis in real estate taxation today.

But the seriousness of the problem of real estate taxation was realized before the depression. In fact, there was active discussion of the question of the burden of the real estate tax throughout the post-war period. The reason for the growth of continuous interest in the problem was that the volume of real estate tax collections was gradually increasing. The cause of the increase was the rise of expenditures and the exposed position of real estate. Because of the escape of other property and other interests from taxation, the real estate tax, as the chief source of local revenue, became the shock absorber for increasing impacts of government expense.

1. Prices, by George F. Warren and Frank A. Pearson.

It is common knowledge that this increase has not been confined to the depression years, but has been noticeable since the beginning of the century, and has been particularly marked since the war. The general property tax collections increased from \$706,660,000 in 1902 to \$1,082,000,000 in 1913, and to \$5,239,000,000 in 1927.² The per capita property taxes in cities of 30,000 increased from \$12.98 in 1903 to \$47.67 in 1928.³ The proportion of total revenues obtained by state and local governments from the general property tax grew (if special assessments are omitted)⁴ from 56.73% in 1902 to 78.7% in 1922. For three decades the volume of collections from real estate and its importance in the finance of local government have been increasing.

One matter about which there seems to be some difference of opinion is whether the "real" rates of taxation of real estate are increasing as fast as these figures would lead one to believe. It is to be noted that by "real" rate is meant the percentage which the tax bill forms of the value of the property, or the amount of tax per thousand of property value. Undoubtedly the billing rates upon assessed valuation have risen, tho we have no adequate averages for the country as a whole. But the assessed values differ widely from the actual values, and the increase of the percentage levies upon assessments therefore gives no adequate measure of the increase of the real rates upon the actual values; for these also were doubtless rising in urban centers, at any rate, during some of the pre-depression years. Professor Bullock, writing in 1928, said: "We are thrown back upon the simple fact that taxes levied upon general property increased from \$525,000,000 to \$1,597,000,000 or 201% during the twelve years covered by the latest available report, and that therefore taxes upon real estate increased rapidly and sharply."⁵ Professor Jensen, on the other hand, reaches a different conclusion. He says: "The

2. S. E. Leland, "Tax Problems and a Tax Program for Real Estate," *Bulletin of National Tax Association*, April, 1930, p. 201.

3. M. S. Kendrick, *Taxation Issues*, p. 36.

4. Leland, *op. cit.*, p. 201.

5. C. J. Bullock, "The Increase of Taxes on Real Estate in American Cities," *Harvard Business Review*, January, 1928, p. 131.

evidence, however, where analysis has been properly made goes to show that the skyward tendency of true tax rates is greatly exaggerated."⁶ He relies upon the computations of Mr. C. E. Rightor of the Detroit Bureau of Governmental Research, who, reducing the taxes paid to a rate per thousand of true value, finds that the adjusted or true rate increased only from \$24.17 per thousand in 1923 to \$24.71 in 1930. The rates for 1931 and 1932 are higher, being respectively \$25.03 and \$26.25.⁷ Finally, Mr. John E. Burton, in a chapter of the Report of the Committee on Taxation of the President's Conference on Home Building and Home Ownership, discards such adjusted rates as measures of tax burden and points out that the true rates given by the Federal Census Bureau and by the Detroit Bureau of Governmental Research are "so variant that two entirely different conclusions can be arrived at by their use."⁸ Various interpretations are thus placed upon the statistics of increase of tax collections. It is evident that the annual ratios of taxes to value computed from our present statistics do not constitute satisfactory indices of the trend of real estate tax burdens. If it is to be proven that this burden has been sharply increasing, some other method of computation is necessary. Beyond doubt the volume of collections has been growing, but it is not so obvious that the burden of the collections to tax payers has been increasing, except in the recent years of deflation.

II. THE CLAIM THAT REAL ESTATE IN GENERAL IS DISPROPORTIONATELY TAXED

Agricultural economists, real estate interests, farm organizations, tax propagandists, and many tax authorities have been saying in recent years that real estate is disproportionately burdened. By "disproportionately burdened" they

6. Jens P. Jensen, *Property Taxation in the United States*, p. 87.

7. Mr. Rightor's estimates are published annually in the December issue of the *National Municipal Review*. The "true rates" for 1931 and 1932 are from the December issue of that journal for 1932, p. 684.

8. Report of the Committee on Taxation of the President's Conference on Home Building and Home Ownership, in *Home Finance and Taxation*, p. 152.

mean that real estate is taxed more heavily than other forms of business enterprise, or that real estate owners are taxed more heavily than other economic groups. That real estate is overburdened seems to be the generally accepted popular view and it is on this assumption that relief for real estate from taxation is demanded. For instance, President Hoover in his address to the Governors' Conference in April of last year said: "The tax burden upon real estate is wholly out of proportion to that upon other forms of property and income."⁹ The New York legislature, in 1930, in creating a State Tax Commission to study the tax system of that state, instructed the Commission to report a plan which shall "relieve those present sources of revenue, *particularly real estate*, which now bear a disproportionate part of the whole tax burden of the state."¹⁰ The United States Chamber of Commerce says "that real estate is bearing more than its just share of taxation and the conclusion is that the basis of state taxation must be broadened and the burden more equally distributed."¹¹ Such statements recur throughout the propaganda for relief of real estate from taxation. Further, it seems also to be the general belief that certain members of the real estate group — farmers and home owners — are more overburdened than others. President Hoover (to quote him again), in a telegram to the National Tax Association at its meeting last year, said: "Along with the necessity for drastic tax reduction, the most pressing fiscal problem of the day is to adjust the state and local tax systems to modern conditions so as to relieve the burden on real property which now presses so inequitably upon the farmer and the small home owner."¹² Tax economists, however, have recently been challenging this contention that real estate is disproportionately taxed to the extent claimed. The question which they are raising is a different

9. New York Times, April 28, 1932.

1. Report of the New York State Commission for the Revision of the Tax Laws, 1932, p. III. *Italics mine.*

2. U. S. Chamber of Commerce, *Fiscal Problems of the States*, 1929, p. 33.

3. Quoted by R. M. Haig in "Taking the Burden from Real Estate," *Bulletin of National Tax Association*, November, 1932, p. 34.

one: not whether real estate is heavily taxed, nor whether the cost of local government is too high, but how to measure the degree of relative overburden. This issue, one of the most important in recent tax literature, may be considered first.

Certain methods of proving that real estate is disproportionately taxed are widely used. Three general formulae seem to prevail: (a) the real estate-wealth tax ratio, (b) real estate income-total income tax ratio, and (c) the rent-tax ratio. The use of the first two of these methods is well represented by the Majority of the New York Special Tax Commission of 1932,⁴ and the third method is common in the studies by agricultural economists⁵ and in the publications of the Bureau of Agricultural Economics⁶ at Washington, tho one or the other of these methods may be found in other literature of taxation.⁷ The first method, employed by the Majority of the New York Commission, involves the following procedure. "The percentage which the value of real estate bears to the total wealth of the state is compared with the percentage which the taxes imposed on real estate bears to the total state and local taxes levied in the state."⁸ The percentage which real estate formed of the total wealth of the state was found

4. Report of the New York Commission, *op. cit.*, pp. 35-39.

5. See, for instance, The Report of the Special Advisory Committee on Social and Economic Research in Agriculture of the Social Science Research Council on Research in Public Finance in Relation to Agriculture, pp. 79-91.

6. For a comprehensive review of studies of taxation of farm real estate by members of experiment stations and others in various states, see Whitney Coombs, *Taxation of Farm Property*, Technical Bulletin No. 172 (1930), U. S. Department of Agriculture.

7. For example see Home Finance and Taxation, *op. cit.*, p. 104; National Industrial Conference Board (1931), *Current Tax Problems in New York State*, p. 25; Clarence Heer, "The Rural Tax Problem," *Journal of Social Forces*, vol. 8, p. 109; with some qualifications, M. Slade Kendrick, "A Comparison between Urban and Rural Taxation on Real Estate Values," *Annals of the American Academy* (1930), vol. 148, p. 232; F. P. Weaver, "The General Property Tax as a Factor in the Unsatisfactory Agricultural Situation," *Annals of the American Academy of Political and Social Science*, vol. 142 (1929), p. 315; Report of the Joint Legislative Committee on Taxation of Iowa (1930), p. 11; Report of Joint Legislative Revenue Committee of Illinois, 1929, pp. 123-128.

8. Report of the New York Commission, p. 35.

to be 34.17%, while the percentage of the total taxes which real estate bore was approximately 70%. On the basis of this wealth ratio, according to the logic of its users, a great reduction of taxes would appear to be in order. The second formula, which the Majority thought "perhaps a more satisfactory" test of the fair burden upon real estate, is that which "assumes that the taxes on real estate are fair in amount when they absorb the same percentage of the income from real estate as other taxes absorb of other income."⁹ The third method, used by the experiment stations in many states, is to compute net rents of farms before taxes, and to find the percentage of the net rents taken by taxes. On the basis of this last procedure, the conclusion arrived at was that, on the whole, taxes were taking about 30% of the "net rent" of farm real estate, which was excessive — greater than the percentage taken from business and property in general.¹ On the basis of such figures as these and from other related facts, Mr. Coombs of the Bureau of Agricultural Economics concludes that "it has been made clear that farm property . . . is bearing more than its reasonable share of the cost of local government."²

The use of such formulas to measure the fair tax burden upon real estate and to indicate the amount of tax relief which should be granted has recently been the subject of criticism by many students of taxation. Among these are Prof. H. L. Lutz,³ Prof. S. E. Leland,⁴ Prof. E. R. A. Seligman and Mr. J. I. Straus, the latter two being a minority of the recent Special New York Tax Commission,⁵ and Prof. R. M. Haig who was Director of Research for the New York Com-

9. Report of the New York Commission, *op. cit.*, p. 37.

1. See Whitney Coombs, *op. cit.*, p. 66.

2. *Ibid.*, p. 67.

3. See his Report No. 6, *The Revenue System of New Jersey*, by the New Jersey Commission to Investigate County and Municipal Taxation and Expenditures, p. 138.

4. S. E. Leland, "Tax Problems and a Tax Program for Real Estate," *Bulletin of the National Tax Association*, May, 1930, p. 235; *The Classified Property Tax in the United States*, p. 130.

5. Report of the Commission, pp. 44-47.

mission.⁶ Perhaps the most unqualified statement of the case against this ratio method of proving disproportionate taxation is that by the Minority of the New York Commission (Professor Seligman and Mr. Straus). They state their case as follows: "Wealth and Income are indices of ability to pay taxes, but neither, alone, can be used as a satisfactory measure. Nor is ability to pay the sole justification for a tax. Benefits received from governmental expenditures are the justification of a substantial part of our tax burden. Finally, no formula can take into account the extent to which taxes are shifted by the taxpayer, nor the extent to which they are capitalized."⁷ On the basis of benefit and capitalization considerations, the Minority recommended the limitation of the amount of relief to be granted to real estate to a figure much less than that advocated by the Majority comprising strong representation of real estate interests.

With reference to capitalization, they state that "there can be no reasonable doubt that a large part of the real estate tax is capitalized when real estate changes hands."⁸ On the basis of a study by Dr. Spengler of the Research Staff referred to below, showing that the average rate of taxes on full value had not changed materially since 1920 and that more than half of the real property in the state had been sold since that date, the Minority felt that reduction of taxes would constitute a bonus to the new purchasers, altho it might bring deserved relief to those who had held their property for a longer period than since 1920. For that reason they apparently concluded that a limited reduction would achieve more justice.

The capitalization theory is, of course, familiar to economists.⁹ Altho Professor Seligman and his colleague quote

6. *Ibid.*, pp. 126-132. See also his paper "Taking the Burden from Real Estate," *Bulletin of the National Tax Association*, November, 1932, pp. 35-37.

7. Report of the Commission, p. 44. This was essentially the position also of Professor Haig, as indicated in the references above.

8. *Ibid.*, p. 46.

9. See, for instance, Seligman, *Incidence of Taxation*, pp. 221-223 and pp. 282-283; "The Effects of Taxation," *Political Science Quarterly*, March, 1923, pp. 3-10; "Tax Exemption through Capitalization," *American Economic Review*, December, 1916, pp. 790-807; T. S.

from Professor Bullock and Sir Josiah Stamp in support of the capitalization reasoning, readers are aware that Professor Seligman himself has long been an advocate of this theory of the "absorption" of taxation of real estate. It is interesting, however, that the problem of incidence, no longer solely of academic concern, is coming to the fore in the popular discussion of the burden of real estate taxes, and that the capitalization theory is receiving reëxamination by students of taxation. In the recent studies of property taxation that others have made by deductive methods, the theory seems to be rather generally accepted. For instance, the Committee on Taxation of the President's Conference on Home Building and Home Ownership (1932) states it as follows: "To the extent that the property tax upon any parcel of real estate is exclusive, i.e. exceeds the average tax burden upon other investments, this excess if capitalized and deducted from the amount which a purchaser of that parcel would otherwise pay for it."¹ Professor Jensen, who has given probably the most extended recent consideration to the matter, seems to accept the theory guardedly and with some qualifications. Others could be added to the list.²

Until recently, however, no adequate inductive study was made of the theory. As in the case of other theory on incidence, verification awaited the collection of proper data and the elaboration of appropriate statistical technique. True, Professor Jensen, on the basis of studies carried out under the auspices of the Department of Agriculture, concluded that "so far as the evidence goes, it supports the hypothesis that the increases in taxes between 1919 and 1924 were rather

Adams, "Tax Exemption through Tax Capitalization: a Fiscal Fallacy," *American Economic Review*, p. 278; C. J. Bullock, *Proceedings of the National Tax Association*, 1909, vol. 3, pp. 99-100; Sir Josiah Stamp, *The Principles of Taxation*, pp. 134-136.

1. *Home Finance and Taxation*, op. cit., p. 108.

2. See the Final Report of the California Tax Commission, 1929, p. 303, which doubtless represents the opinion of Professor Haig, the Director of Research for the Commission; also H. D. Simpson, "Incidence of Real Estate Taxes," *American Economic Review*, June, 1932, p. 222.

completely capitalized."³ He drew this conclusion, despite his recognition that the data were limited both as to the number of samples and the period covered.⁴ On the other hand, Mr. Coombs, economist of the Bureau of Agricultural Economics, dealing with the same data, said: "An increased level of taxation that is expected to be permanent will be reflected in the price that a buyer will offer for land since his return on the land will be reduced by the taxes that he has to pay. It is impossible at present, however, to segregate definitely the effects of the capitalization of taxes from the other factors that have caused land to decline in value since 1919."⁵

In view of the absence of adequate inductive proof of capitalization, economists will be interested in the attempt of Dr. Spengler of the New York Commission research staff to lend statistical and quantitative support to the theory.⁶ Spengler begins his study with the proposition that "Under the generally accepted economic analysis, if the tax is definite and remains the same over a period of years, and applies to one class of property, the owner virtually buys the land tax-free,⁷ if he purchases the property in the expectation that the established tax rate will be continued."⁸ He therefore sets himself two questions: (1) How long ago did the existing property owners acquire title? and (2) for how long have the tax rates been on their present level? He finds in answer to the first question that "more than one-third of all property owners in New York State, whether urban or rural, have acquired title within approximately a decade; that more than two-thirds of the urban owners have bought their land within

3. Jensen, *op. cit.*, p. 71.

4. *Ibid.*, p. 69.

5. Coombs, *op. cit.*, p. 53.

6. E. H. Spengler, "Turnover of Title to Real Property in New York," Memorandum Number 4 submitted to the New York Commission.

7. It is well to point out that the phrase "tax-free" is inaccurate. It would have been better to say "free of any unequal taxation" or "free of any excess of taxation over that prevailing upon competitive or alternative investments." See T. S. Adams, "Tax Exemption through Tax Capitalization: a Fiscal Fallacy," *American Economic Review*, p. 278.

8. Spengler, Memorandum Number 4, p. 7.

the same period; and that from one-half to three-quarters of all present titles came into existence within the last twenty years throughout the State."⁹ With reference to the second question, he finds that "in most jurisdictions the level of the tax rate has been fairly uniform since 1920."¹ He concludes that "this tends to support the presumption that the capitalization process has occurred among an appreciable percentage of existing property values."² Professor Haig, in commenting upon Dr. Spengler's results to the Commission, said: "About one-third of the present owners of rural property and between one-half and two-thirds of the present owners of urban property purchased their property after taxes had reached approximately their present level; and presumably the price which they paid for this property was a price which had been discounted to allow for such taxes."³ Thus both writers guard themselves; they do not claim that the evidence proves that the capitalization process operates, but only that it supports the presumption of its operating. Professor Leland, in a recent review of Dr. Spengler's study, rightly points out that "because the tax rates have been at a given level and because a large proportion of titles have been transferred, it does not follow that capitalization has taken place. It has only been assumed."⁴ This is true, and Dr. Spengler in reply to Leland admits that the study was not intended as a complete examination of the process of capitalization, and that the theory requires overhauling and further study.⁵ The study is significant, however, in offering data hitherto lacking as to the rate of turnover of title to property and in suggesting the possibility of further research along this line. It does show that at least *two conditions* essential to capitalization were present during the post-war period.

9. Ibid., p. 45.

1. Ibid., p. 47.

2. Ibid.

3. R. M. Haig, Report Submitted to the Commission, Part 2 of the Report of the Commission, p. 131.

4. S. E. Leland, "The Real Estate Tax: Capitalization and Benefit," Bulletin of the National Tax Association, May, 1933, p. 229.

5. E. H. Spengler, "The Real Estate Tax: Capitalization and Benefit — A Reply," *ibid.*, p. 233.

Other conditions, however, may be present to make uncertain or inoperative the process of capitalization. Professor Leland in his review of Dr. Spengler's memorandum has called attention to one condition not considered by the latter — "the degree to which alternative investment opportunities are available." This is a highly important element. It has been maintained, for instance, that farmers pay higher for land and accept lower returns from it because they are unwilling to place their money in other investments.⁶ To what extent, if at all, is this true also of investors in urban realty? It is common knowledge that the rate of return on real estate both urban and rural is lower than the prevailing rate on other capital.⁷ The operation of the capitalization process obviously depends upon the equalizing tendency of free mobility of investment. Some evidence of the extent of the mobility of investment funds from real estate to other fields would seem necessary in any inductive study of this process. It is also claimed that market values do not coincide with capitalized values because non-economic elements enter the valuation process.⁸ The existence of such factors might defeat the process of capitalization of both income and taxes.

A further possible disturbing factor is the extent of dominance of market value by speculative considerations.⁹ It is asserted that prices paid for real estate have been based not on capitalization of income, but upon expected future increases of value.¹ Miss Newcomer has remarked recently that during the past decade farmers have failed to capitalize not only expected increases in taxes but even current taxes and

6. Ely and Morehouse, *Elements of Land Economics*, p. 246. Cf. also B. H. Hibbard, "Taxation in Relation to Land Utilization," Conference on Economic Policy for Agriculture, Chicago, September, 1931, p. 44.

7. Ely, "The Taxation of Land," *Proceedings of the National Tax Association*, 1921, pp. 242-243.

8. Ely and Morehouse, *op. cit.*, p. 246.

9. Lutz, *Public Finance*, p. 332.

1. See P. H. Cornick, "The Going Value of Real Estate," *Annals of the American Academy of Political and Social Science*, 1930, vol. 148, pp. 177-183.

current income as well.² Purchase prices have failed to bear the proper relationship to income. If her findings are correct, they serve in part to invalidate the capitalization theory so far as agricultural real estate in that period is concerned. They indicate, at least, that if capitalization has been at work here, it has been at such a low rate or on such an erroneous basis as to lose significance.³

It is not sufficient, therefore, to establish change of titles of property and constancy of tax rate to support the presumption that capitalization of the real estate tax takes place. Moreover, owing to the difficulty of measuring the extent of alternative investments and of isolating the influence of the speculative factor and other elements in the determination of land values, it will probably prove a difficult task either to verify or to disprove the capitalization theory by inductive methods. Therefore, in the present state of our knowledge, we must still rely upon deductive reasoning. On this basis it seems that in the case of farm real estate, either the process does not operate, or else it does so with considerable imperfection and uncertainty. This tendency may change, of course, in the future. In urban centers, on the other hand, taxes are more likely to be capitalized. It is obvious, however, that to the extent that unequal real estate taxes have been capitalized by new purchasers, the claim for reduction in the real estate tax is unwarranted. In calling attention to this fact, Professor Seligman, Professor Haig, Dr. Spengler and others have helped towards a more just fixation of tax burden than that demanded by the real estate interests.

The second argument urged by the Minority of the New York Commission and others⁴ against the formula method of measuring the fairness of the burden of taxation of real estate is that it ignores the benefits to real estate from local govern-

2. Mabel Newcomer, "The General Property Tax and the Farmer," *Journal of Political Economy*, 1930, pp. 66-70.

3. It is interesting to note that Professor Seligman at an earlier date had reached the conclusion that taxes on selling value of farm land were not capitalized. See his *Incidence of Taxation*, p. 270.

4. See, for instance, Prof. R. M. Haig, *Bulletin of National Tax Association*, November, 1932, p. 37.

ment services purchased with the tax. The significance of this point is, of course, that a higher rate of taxation of real estate is justified by these benefit considerations. Thus, with reference to the current proposals for reduction of the present burden, Commissioners Seligman and Straus said that "while there is no test of the exact proportion of the taxes which should be imposed on real estate, it is clear that there is no justification for reducing taxes below the amount which is expended for governmental activities benefiting real estate directly." This contention is not new in the literature of taxation.⁵ A new contribution has been made, however, by the New York Commission in the application of the principle in the investigations of Dr. E. H. Spengler of the Commission's staff. The results of his study, forming a partial basis for the Commission's estimate of the amount of relief to be given to real estate in New York, were published in the Report of the Commission as Memorandum Number 5, "Is the Real Estate Tax a Benefit Tax?"⁶ The Memorandum is significant for its attempt to isolate those expenditures and services of local government which are of direct benefit to real estate and to reduce to mathematical expression the proportion of the real estate tax which represents such direct benefits. Dr. Spengler classified expenditures of cities, villages and counties of the state, with reference to "the varying degrees to which such expenditures might be regarded as benefiting the owners of real estate," into (1) "direct services of benefit to property owners," and (2) "social service functions and miscellaneous functions."⁷ Expenditures of the second category were excluded because they were deemed to yield only indirect benefits extremely hard to estimate. Under the head of direct services were included such items as refuse collection, sewage disposal, care of streets and highways, water supply, fire protection, assessment of property and, in

5. See, for instance, C. J. Bullock, *Proceedings of the National Tax Association*, 1909, vol. 3, p. 99. Cf. also Marshall, *Principles of Economics*, 6th Edition, pp. 794-797, who distinguishes between "onerous" and "beneficial" rates.

6. See Part III of the Report of the Commission.

7. Memorandum Number 5, p. 64.

part, police services, city planning, and municipal courts, not all of which were considered to be benefits to individual property owners.⁸ From the jurisdictions studied Dr. Spengler found that in the cities from one-half to two-thirds of the property tax revenues were used for direct benefits; in the villages a larger percentage; and in the counties, a smaller percentage. As will be pointed out later, the fact that benefits from real estate taxation are less in the rural regions tends to set apart farm from city property so far as amount of relief is concerned. Taking all jurisdictions together at least half the real estate tax went for direct services to property owners.⁹

This study, purporting as it did to have a high degree of exactitude, involved decisions both as to principle and procedure some of which are questionable. It required determination of criteria of benefits and evidence of the presence of such criteria. It required decisions as to the allocation of benefits as between the general public and the taxpayers. It involved assumptions as to shifting and incidence of benefits as well as of taxes, for the determination whether owners or tenants are the beneficiaries. It involved also the reconciliation of the benefit considerations with the concept of capitalization. With reference to all of these aspects of the study, Prof. S. E. Leland, in the review referred to above, has made interesting comments. First, he has made the point that Spengler has not supplied either adequate test or evidence of benefit.¹ The latter seems to have assumed that demands for government services on the part of certain groups constituted objective evidence of the presence of benefit in these services to the taxpayers. Proceeding on that assumption, he presented a large collection of newspaper clippings showing the demands for extension of certain government services on the part of civic associations, real estate boards, chambers of commerce and others in various localities.² Professor Leland

8. *Ibid.*, pp. 22-30.

9. *Ibid.*, p. 64.

1. S. E. Leland, *Bulletin of the National Tax Association*, May, 1933, p. 230.

2. *Memorandum*, pp. 10-21.

quite rightly contends that the fact that realtors, civic associations, and boosters have demanded expenditures does not prove that such disbursements have yielded benefits to taxpayers commensurate with the additional taxes required. Civic boosters may urge economically unwise government extensions of service which the inarticulate taxpayers do not regard as worth their taxes.³ The absence of positive advantages is especially evident when government services are extended to outlying regions. The charges for such services, during the lag in population movement to those regions, are laid upon the property levy of the whole city. Leland is himself subject to question, however, when he states unequivocally that "there appears to be only one way in which benefit to owners *per se* can be measured and that is through favorable effects upon property values."⁴ To make value-enhancement the sole criterion would exclude such benefits as owner-occupiers might possibly enjoy without any effect upon their property values. I am aware that this is a debatable point, but it should not be excluded from consideration in the study of the nature of the benefits which flow from government services. To count as benefits only such as enhance values might lead to an erroneous conclusion. Indeed, there are some who hold that there is no direct relationship between government services and property values.⁵ On this point, in part at least, turns the question of statistical procedure in measuring benefits. Should one work out an allocation of benefit expenditures on presumptive bases or attempt to isolate the value changes in property due to such expenditures? The matter of the criteria of benefits requires further study.

A further question raised by Professor Leland is whether Dr. Spengler is right in assuming that benefits accrue to

3. See, for a discussion of this point, C. J. Bullock, *Harvard Business Review*, January, 1928, pp. 137-138.

4. S. E. Leland, *Bulletin of National Tax Association*, May, 1933, p. 231.

5. Jensen, *op. cit.*, p. 83 and National Industrial Conference Board, *State and Local Taxation of Property*, p. 6.

owners and not also to tenants.⁶ The point seems to be well taken. Do not tenants receive many of the benefits and pay higher rentals for them? Dr. Spengler replies that, even if shifted, a charge for a service would still be justified on the benefit principle since the tenant would be both beneficiary and ultimate taxpayer.⁷ This is true, but it changes his original assumption of limitation of benefits to property owners. It is still possible that both owner and tenant may profit from some services. If certain of these services are supplied by government, whether exclusively or only more cheaply than by private initiative, demand for houses in regions provided with such services might be sufficient to give owners advantages both in higher rentals and in higher values, in addition to the specific benefits derived by the tenants. If exactness is to be achieved, therefore, much remains to be done in ascertaining the allocation of benefits between owners and occupiers. This is essential if these two groups are to know the extent to which they are receiving a quid pro quo.

The most serious problem raised by Dr. Spengler's study is, however, the possible inconsistency between the doctrine of capitalization and the benefit principle. Professor Leland raises this question but does not discuss it.⁸ If the landlord receives proportionate benefits for his taxes, why should there, under competition, be any discount of value through capitalization? Do not owner benefits cancel the reduction of income by taxes? Are values both reduced and enhanced by the same cause? Furthermore, if the owners are reimbursed for benefits shifted to tenants, what is there to reduce the capitalized value? I am not convinced by Dr. Spengler's attempt at reconciliation of the two concepts. His statement is as follows: "The theory of capitalization begins with the determination of the net product of property, which, reduced by the amount of tax, results in a decreased capitalized value.

6. Leland, *Bulletin of National Tax Association*, May, 1933, p. 231.

7. E. H. Spengler, "The Real Estate Tax: Capitalization and Benefit — A Reply," *Bulletin of National Tax Association*, May, 1933, p. 235.

8. *Bulletin of National Tax Association*, May, 1933, p. 229 and p. 232.

. . . If the cost of some of the benefits derived from the government is assumed to be shifted to the tenants, the rents will be correspondingly increased by the amount shifted. This means that the net product, before taxes, to be capitalized will likewise be increased. . . . To the extent that a part of this burden is shifted to his tenant, the rent levels at the time of purchase are correspondingly higher and hence make the property appear more valuable."⁹ But if the "rent levels" must be reduced by the tax, the net income of the owner would be the same after as before the tax. Other things remaining the same, therefore, it could not follow that the capitalized amount would increase, and so the property would not "appear more valuable" to the purchaser. Capitalization rests upon the non-shiftability of taxes, and to the extent to which the benefit elements of the real estate are shifted capitalization would not take place. If, therefore, the benefit elements are shifted, apparently only the "onerous" elements (to use Marshall's phrase) remain for capitalization. However, as Prof. T. S. Adams has pointed out, it is only unequal taxes that are capitalized.¹ Thus, if the "onerous" element is no greater in burden than that upon alternative investments, none of the tax would appear to be capitalized. I make no pretense of opinion or of information as to what extent benefits are shifted to tenants, but it is clear that the extent of capitalization and the extent of benefit to owners and occupiers are related. The same element of a real estate tax can not be justified upon assumption both of benefit and capitalization. The relationship between these two does not seem to be sufficiently recognized by Dr. Spengler, and Professor Leland does a service here in pointing to the need of clarification.

Dr. Spengler's study is to be commended, however, as a pioneer attempt to reduce to quantitative terms the amount of benefit derived from real estate taxes. It constitutes an impressive demonstration of *presumptive* benefits from such

9. *Ibid.*, p. 235.

1. T. S. Adams, "Tax Exemption through Tax Capitalization: a Fiscal Fallacy," *American Economic Review*, June, 1916, p. 278.

levies. Both studies — of benefits and of capitalization — were said to have “produced results which were startling even to those most familiar with real estate conditions.”²

Granted, however, the indefiniteness and doubt concerning the operation of capitalization, and the limitations of the use of the benefit principle, neither can now be ignored in adjustments of tax burdens. There is doubtless enough force in either of them to reduce markedly the claims for relief for real estate on grounds of justice alone. Furthermore, these two considerations are sufficient to condemn the attempt to find any ratio formula to measure the fairness of burden. Professor Lutz, who also has given attention to this question, is undoubtedly right when he says in the recent New Jersey study that “there is no merit in any attempt to determine by formula the proportion of all taxes to be levied upon real estate.”³ The amount of tax which “should” be paid by real estate is not subject to scientific determination. The decision as to rates in fact seems to depend upon group conflict and matching of power. In the opinion of some students, therefore, the real estate tax partakes of the nature of a “quit rent” charge which is inevitable and which represents the cost of holding title to such property.⁴ If this be so, we should stop trying to relate the tax to the earnings, or to compare the burden upon real estate income with that upon income from other property or business.⁵ In this view, taxes should be regarded like interest and depreciation, as inevitable consequences of real estate ownership. It will probably be constructive, for a time at any rate, for students of local taxation to turn their attention from questions of “justice” to problems of the economic and social effects of the real estate tax in America under present conditions.

2. R. M. Haig, *Bulletin of National Tax Association*, November, 1932, p. 36.

3. H. L. Lutz, Report No. 6, of the New Jersey Commission to Investigate County and Municipal Taxation and Expenditures, p. 138.

4. Jensen, *op. cit.*, p. 84; Newcomer *op. cit.*, p. 66.

5. Jensen, *op. cit.*, p. 84.

III. IS FARM REAL ESTATE MORE HEAVILY BURDENED THAN URBAN?

This question has been given much attention in the recent literature. From the studies thus far made, however, no very definite conclusions can be drawn. There is no noticeable difference in the severity of assessment of urban and rural property in the opinion of Mr. Kendrick⁶ and Mr. Hibbard.⁷ If one uses the questionable measure of proportion of taxes to value or to income, the burden upon farm and urban real estate would appear to be substantially the same,⁸ altho the amount of evidence is hardly sufficient to warrant a conclusion.

One might infer from this that farm real estate is no more heavily taxed than urban and that farm owners merit no more relief, if relief is to be granted, than urban owners. Certain considerations, however, urged by some writers undoubtedly make the farmers' case for relief a stronger one. In the first place, it is claimed that urban owners get more and better government services for their tax dollars than do the farmers.⁹ Moreover, in the rural regions there is lower per capita wealth to bear the charges for government services.¹ The burden may be greater also in the sense that real estate forms a larger proportionate part of the farm business investment than of the urban business investment.² Furthermore, it is more difficult for the farmer to shift his taxes to consumers of his products than for the urban business man.³ These points are not of equal importance or soundness but together they tend to show that the burden of the same real estate rates is heavier to the rural than the urban owner.

6. M. S. Kendrick, "Urban and Rural Taxation of Real Estate Values," *Annals*, 1930, 148, 148.

7. B. H. Hibbard, "Taxation and Land Utilization," Conference on Economic Policy for American Agriculture, 1931, p. 42.

8. Newcomer, *op. cit.*, pp. 63-64; Coombs, *op. cit.*, p. 32.

9. See, for instance, Clarence Heer, "The Rural Tax Problem," *Journal of Social Forces*, 8, 110; Coombs, *op. cit.*, p. 33.

1. Heer, *op. cit.*, p. 111.

2. Newcomer, *op. cit.*, p. 63; Weaver, *op. cit.*, p. 312;

3. Coombs, *op. cit.*, p. 63.

IV. THE CASE FOR REDUCTION OF THE REAL ESTATE TAX

The literature so far examined establishes clearly that the amount of relief demanded for real estate owners as compared with other taxpayers is more than should be given. On the other hand, the difficulty of determining the exact amount of reduction is equally well established. However, aside from the question of incidence and burden, a case can be made on other grounds for permanent tax relief for real estate. The considerations to be urged are several. In the first place, the tax is extremely rigid. In times of falling prices assessments and rates lag behind. The larger the place of real estate taxes in our fiscal system the more burdensome the inflexibility. It is unreasonable that the American tax system should be fifty per cent inflexible to deflation. Yet that is the situation when real estate contributes one-half of the total tax revenue.⁴

A second consideration in favor of some reduction of burden is found in the inequalities of assessment of real estate. All recent studies have stressed the fact that the operation of the American assessment system has resulted throughout the country in discrimination between large and small properties. It has been established that, in urban and rural regions alike, the more valuable parcels of real estate tend to receive lower assessments in proportion to sale price than the less valuable parcels. Assessments thus become regressive in effect.⁵ Such inequalities in assessment throw a relatively heavier portion of the real estate load upon the small property owner — the home owner and the small farmer. In so far as such taxes are not escaped through shifting or capitalization, they result in a distribution of the burden of taxes in inverse ratio to economic status. The extent of such inequality is undoubtedly very great in this country. For instance, it has been estimated recently that the sum of the taxes improperly placed by over-

4. The need of reducing the tax and keeping it within bounds because of inflexibility is implied if not expressed by many writers. See, for example, Kendrick, *Taxation Issues*, p. 48; *Home Finance and Taxation*, p. 183.

5. See Jensen, pp. 293-295; *Home Finance and Taxation*, pp. 166-170; Kendrick, *Taxation Issues*, pp. 58-68; Coombs, *op. cit.*, pp. 48-49.

or under-assessment was \$30,000,000 in Chicago alone and \$64,000,000 in Illinois. It has been calculated that to equalize the taxes in New York State in accordance with proper assessment of value would require moving taxes up or down, as the case might be, to the sum of \$150,000,000 and that to do the same thing for the entire country would require alterations in individual taxes equal in volume to from 20 to 40% of the total taxes.⁶

The reason why such great inequalities in assessment furnish an argument in favor of reduction of the present level of real estate taxes is that lower taxes would reduce the quantitative disparity in existing taxes and would remove one element which may constitute a deterrent to home ownership. Reduction would not remove discrimination but would alleviate its severity. Even if the real estate tax is largely escaped through capitalization, the resulting confiscation of values impinges unequally and regressively upon the original owners. Reduction of the rate would thus limit the extent of confiscation and partially remove from the poorer owners a discriminatory burden of losses in the value of their property.

This argument for reduction apparently has not been emphasized by writers on the subject. Miss Newcomer, for example, merely states that the hardship of a heavy rate is increased by the "injustice arising from unequal assessments";⁷ and even the committee of the President's Conference contents itself with urging the correction of the bias in assessments,⁸ as also does Mr. Coombs.⁹ Perhaps students of the subject assume that inequality should be met not through reduction of rates but through improvement of assessment procedure. As a practical matter, however, it must be recognized that the necessary perfection of assessment will be long delayed. Furthermore, if the present level of taxation is maintained, it may serve to perpetuate undervaluation of large properties because of the indisposition of assessing

6. Home Finance and Taxation, pp. 105-106.

7. Newcomer, *op. cit.*, p. 71.

8. Home Finance and Taxation, p. 114.

9. Coombs, *op. cit.*, p. 51.

officials to impose heavy tax bills at the prevailing high rates.

✓A further consideration has been advanced in favor of reduction, which, in my opinion, has validity. This point has been made by the Taxation Committee of the President's Conference already referred to. It is that whatever the incidence of the tax, the owner must face the "obligation of payment." As the Committee puts it, "Whether he is making or losing money, whether his property is free or encumbered, the owner of the property must ordinarily pay the property tax within the period prescribed by law or suffer the heavy penalties, direct and indirect, of delinquency."¹ It is true that this point avoids the difficult question of who may ultimately bear the taxes. It is really another way of stating that the tax is an inevitable cost of holding land, a "quit rent" charge as indicated above. Nevertheless, as long as we permit and encourage private ownership of land, the "obligation of payment" constitutes an important feature of the tax. Obviously the heavier the tax, the more onerous the inexorable payment. Here we have a partial explanation of delinquencies, foreclosures, and defaults. It is partly because of this that Professor Bullock could say that "he who buys real estate gives hostages to fortune,"² since the buyer faces a certain and probably rising annual tax bill which, come what may, has to be paid.

It is on grounds such as these, if at all, that a case can be made for somewhat less reliance on real estate taxes and a greater pressure on others. These arguments, however, would lead to less relief than that urged in popular discussion. It is needless to point out that the case thus presented does not turn upon relative burden, nor does it involve a decrease in the cost of government.

The above considerations, however, relate to a long range program of real estate taxation. The depression, with deflation, declining incomes, and unemployment, has caused many tax sales, and is jeopardizing the titles to homes and farms. Altho taxation undoubtedly has been over-emphasized as an

1. Home Finance and Taxation, p. 107.

2. C. J. Bullock, Harvard Business Review, January, 1928, p. 141.

element in the home and farm situation, tax delinquency is growing and increasing tax sales are threatening. If we wish, therefore, during the depression and until the price level is adjusted, to preserve home ownership and small farming, something must be done about taxes. But it is doubtful if reduction of the tax rate will meet the situation. In the first place, many home owners are so situated that they cannot pay the already accrued taxes unless friends, mortgage holders, or the banks come to the rescue. The only tax action which would be helpful in these cases would be to stop collecting. In the second place, as to farms, there are whole regions, as pointed out by the New York Special Tax Commission, in which even total remission of taxes would not make possible a net income. Thus, tax reduction would not be very effective farm relief.

If, however, the real estate tax is to be reduced as a depression measure to relieve the home owner and the farmer, it would be well to consider the advisability of selective relief rather than blanket reduction. More effective and direct relief could be extended to home owners and farmers by an adequate and uniform lump sum credit against the tax than by reduction of the flat rate. Is the objective of tax relief to preserve the equities of the insurance companies, banks and real estate bondholders or to preserve the homes and the farms? Doubtless practical considerations at this time favor some reduction of the rate, but, in the opinion of the present writer, it would be more merited and more likely to accomplish its purpose if it were limited by the credit device or in some other constitutional way to those whom we wish to aid.

One caution needs to be sounded about tax relief, long-run or short-run. The relief that may be extended to real estate may prove to be temporary, at any rate for the farmer. Two writers have stressed that point recently. Miss Newcomer contends that if some slight reduction in the farmer's taxes takes place, the new purchasers will immediately capitalize it in increased values so that they will be in no better position from the point of view of investment yield than before.³

3. Newcomer, *op. cit.*, pp. 66-70 and p. 72.

Professor Jensen takes the same position.⁴ In the light of these studies it would appear that tax reduction will bring no ultimate relief to rural real estate owners. It will bring them no relief, that is, unless they change their habits of investment valuation.

There is another reason why relief from present taxes may prove temporary. If new sources of revenue are found, they may be utilized now to reduce taxes upon real estate; but later, under the pressure of increasing expenditures, taxes are likely to rise again, those on real estate along with the rest. So the good would be undone. For this reason, it is being proposed in some quarters that the imposition of new taxes be accompanied by statutory reductions of the rate upon real estate.

V. METHODS OF RELIEF OF REAL ESTATE

Admitting that some relief to real estate should be granted, we are now brought to the question, what methods of relief are available? Two avenues of escape are open: one, reduction of the expenditures of government which would reduce the burden upon all taxpayers; the other, adjustment of the tax burden through resort to new sources of revenue.⁵

Tho there is a tendency to regard the increase of public expenditures with social progress as in the long run inevitable, tax scholars are beginning to find from their researches that at the present time, without the curtailment or elimination of essential and justifiable functions, the cost of government can be reduced. Prof. H. L. Lutz as director of a recent New Jersey study of County and Municipal Expenditures has been able to map out a feasible program for such reductions for that state,⁶ and his work is valuable as illustrative

4. Jensen, *op. cit.*, pp. 76-77.

5. See, for instance, Home Finance and Taxation, p. 137; H. L. Lutz, Report of the New Jersey Commission, *op. cit.*, p. 138; and R. M. Haig in the Bulletin of the National Tax Association for November, 1932, p. 35.

6. See various Reports of the New Jersey Commission to Investigate County and Municipal Taxation and Expenditures, Nos. 1, 2, 3, 4, 5, 7, and 8. See also H. L. Lutz, "The Control of Public Expenditures," Proceedings of the National Tax Association, vol. 24 (1931), pp. 153-171; and Report of New York Tax Commission, *op. cit.*, pp. 234-241.

of the possibilities for the country as a whole. Others also have been devoting attention to this problem, with the result that we are now able to say that reduction of local costs is quite feasible.⁷ This is the surest and simplest method of relief to real estate, if the proper program of reduction is initiated without too drastic and uneconomic curtailment. It is emphasized, however, that if limitation of expenditure is to be permanent in local government, some measures of state control over local finances will have to be imposed.⁸ Apparently, at present at any rate, local governments alone cannot be trusted properly to regulate their own fiscal affairs.

To find proper methods of relieving real estate by other taxes is, however, a difficult matter. The popular addresses on the subject which glibly suggest new taxes for relief of real estate do not take account of difficulties involved. The basis of the proposal, of course, is that other undertaxed sources of revenue are available. Professor Jensen, for instance, points out that: "in the main the classes not adequately reached by the property tax belong to two groups: one group consists of those who derive considerable income from investments or from personal exertion, in the form of wages or salaries or from business enterprises requiring little capital. The second group consists of those who have small incomes, chiefly from labor."⁹ This is doubtless true, but the problem comes in finding what taxes will touch these classes without also touching the property owners. It must be remembered that the purpose of reduction is not to relieve the inanimate thing "real estate," but the owners of it and perhaps the tenants. It is easy to take the taxes off real property and place them elsewhere, but the new levies still may strike owners, or tenants, indirectly. This may well be true of some of the new measures proposed and in many places actually adopted, such as general sales taxes, selective sales taxes (upon soft drinks, cigarettes, beer), income taxes, and

7. *Home Finance and Taxation*, pp. 137-146.

8. Report of New York Commission, *op. cit.*, pp. 227-233; and the Report No. 1 of the New Jersey Commission, p. vi and pp. 200-201.

9. Jensen, *op. cit.*, p. 98.

other miscellaneous charges. It is entirely possible, for instance, in the case of the sales taxes that whatever is taken from the real estate tax bill of the home owner and the farmer may be balanced or even exceeded by the increase in the grocery bill, the clothing bill and the furniture bill. The possible ultimate effects upon certain groups — home owners, house renters, apartment tenants and business men — by the substitution of sales taxes for real estate taxes are carefully analyzed by Dr. Carl Shoup for the New York Tax Commission.¹ The Minority of that Commission reached the conclusion that the substitutes (sales taxes and others) recommended by the Majority of that body might increase the burden on such groups as apartment tenants and small business owners, and, in so far as they lowered rentals, would not relieve landlords.² The precise effects, therefore, of substitutes are difficult to determine. As regards the sales tax, Dr. Haig, who directed the research for this Commission, recently stated: "I deliberately submit that any politician who has the interests of the small home owner and rent-payer at heart can not sincerely and consistently urge the substitution of general sales taxes for real estate taxes."³ The danger, then, as the Minority of the New York Commission pointed out, is that the substitutes will take part of the burden from the well-to-do (real estate owners) and place it on the poor.⁴ In this connection Professor Haig has said that "much of the complaint, perhaps the bulk of it," is coming from the large realtors, owners of office buildings and large apartment houses, who are unable to find tenants.⁵

The income tax, in states where it is not already used, is probably the most effective substitute. Experience shows, however, that unless some method of control of expenditure is introduced, the income tax will prove to be only an addi-

1. See his Memorandum No. 7, "Retail and General Sales Taxes" (published in Part III of the Report of the Commission), especially pp. 12-18 and pp. 35-37.

2. Report, pp. 47-48.

3. Bulletin of National Tax Association, November, 1932, p. 34.

4. Report, p. 48.

5. Haig, Bulletin of National Tax Association, November, 1932, p. 34.

tional burden.⁶ Moreover, it must be admitted that, if the exemption be made low (as is often recommended, and probably must be to yield sufficient revenue), the persons relieved of real estate taxes may themselves have to pay the difference. To meet this difficulty, in some of the new income taxes, offsets for property taxes are being allowed. Thus when a real estate owner pays his income tax, he is allowed to deduct from it the amount of the tax on his property. This device is intended to prevent the new levy from becoming an additional charge on the real estate owner and to put the burden upon others. The Committee on Taxation of the President's Conference on Home Building and Home Ownership, however, rejects the offset method, on the basis of Professor Simpson's study of its operation in Wisconsin.⁷ Professor Simpson found that an income tax without an offset actually would reduce real estate tax rates more than one with the offset.⁸ Paradoxical tho it may seem, this result ensues because the larger realty owners absorb in offsets much of what otherwise would be available for reducing the property taxes especially of small owners. The offset, thus, does not appear to be in the interest of home owners and small farmers.

Besides these difficulties Professor Jensen draws attention to the fact that substitutes may depress real estate values as much as do the existing property taxes. If made too heavy such taxes may drive business away. For this reason there are definite limits to relief for real estate.⁹

Another proposal is to exempt buildings from tax. This has been done to a certain extent in the cities of Pittsburgh and Scranton, Pennsylvania, by the so-called graded tax plan. But the results, according to some studies of the case, have

6. Jensen, *op. cit.*, p. 485; Bullock, *Harvard Business Review*, January, 1928, pp. 134 and 139.

7. *Home Finance and Taxation*, pp. 121-122.

8. See his paper, "The Effect of a Property Tax Offset under an Income Tax," in *Home Finance and Taxation*, pp. 208-217. See also his separate treatment of the same subject entitled, "The Effects of a Property Tax Offset under an Income Tax," published by the Institute for Research in Land Economics and Public Utilities.

9. Jensen, *op. cit.*, p. 77.

not been such as to reduce the burden upon real estate. The plan is not recommended by the President's Conference Committee, tho they admit that it might relieve the burden on small owners the value of whose houses exceeds that of the lots;¹ nor, despite this advantage is it favored by Professor Lutz.² The objection seems to be that there is a given amount to be raised in taxes and if some taxes are taken off small properties they will have to be added on the larger ones. The scheme would not reduce taxes in toto, but only redistribute them. The question has been raised in this connection, however, whether, if reduction is to be made on real estate, it would not be desirable to extend the relief to buildings and not to land.³ If it is true that the land taxes have been capitalized and the building taxes have not, this fact would constitute a point in favor of limiting the relief to the buildings.

In sum, the studies so far indicate that it is not a simple matter to adjust the tax system so as to shift a part of the tax load from real estate owners and tenants to other shoulders, and that there are distinct limits to this method of relief. More hope probably lies in control of expenditures than in tax adjustment. At any rate, much research remains to be done before actual relief to taxpayers is sure to be achieved through the tax adjustment method.

VI. THE PROPOSAL OF AN INCREMENT TAX

Professor Haig, in his report to the New York Special Tax Commission, raised the question "whether in case the taxes on real estate are to be materially reduced, the occasion is not a suitable one to review the desirability of an increment tax."⁴ Altho he does not discuss the matter, I believe he acted wisely in bringing it to the attention of students of taxation and legislators at this time. If there is to be sub-

1. Home Finance and Taxation, p. 131.

2. See his Discussion of the Pittsburg Graded Tax Plan, Report New Jersey Commission, No. 6, op. cit., pp. 152-160.

3. Prof. R. M. Haig in his report to the New York State Commission raises that question, see Report, op. cit., Part II, p. 135.

4. Report of the Commission, Part II, p. 135.

stantial tax relief to real estate, the burden upon the idle landholders will go down with that of all the rest. Moreover, to the extent that present purchasers have bought their land at less than it would have been worth with lower taxes, and to the extent that land values thus rise as a result of reduction of taxes, present owners will be given a straight bonus, in some cases of considerable amount. If an increment tax were introduced upon profits from future sales, the cities or the states, as the case might be, could capture these gains. Moreover, if the annual taxes are to be less in the future, such an increment tax would not be as burdensome as it would be with the present level of annual rates. The present seems a good time to study the feasibility of this tax.

VII. PROPOSED CHANGES IN THE FUNDAMENTAL CHARACTER OF THE REAL ESTATE TAX

The current discussion is giving rise to proposals for altering the fundamental character of the real estate tax. One of the most thoro-going changes is that suggested by Mr. Slade Kendrick in his recent book, *Taxation Issues*.⁵ It provides for an entirely new mode of distributing the costs of government. He would divide taxation into two general categories: for revenue and for discrimination. The taxes for revenue would be levied upon the groups who specifically derive the benefits from them. To quote: "Whenever the benefits arising from a particular governmental expenditure can be allocated to a particular tax source, that tax source should pay for this expenditure."⁶ For example, the expenditure for fire fighting service, being for the protection of buildings, should be allocated to buildings. Expenditure for road building and maintenance should be laid upon owners of adjacent property, upon motor vehicle users, and upon people who do business through the facilities thus created. Expenditures would thus be segregated according to purpose and allocated to separate groups. The bearing of this proposal upon the real estate tax is that it might lead to assigning more of the burden of

5. M. Slade Kendrick, *Taxation Issues*, pp. 136-147.

6. *Ibid.*, p. 137.

government to groups other than landowners. The plan would cause the charges on other groups to fluctuate with changes in expenditures, as the levy on real estate does now. Instead of having only one of our taxes — the real estate tax — on an expenditure basis, all so-called "revenue" taxes would be governed by the expenditures of the year which they cover. Perhaps the result would be less violent fluctuation or movement of the rates on real estate but more fluctuation in other taxes. The plan would thus extend the range of fluctuation in our tax system,⁷ as Professor Kendrick admits.

The proposal, however, raises many difficulties. First, in so far as certain expenditures would be allocated to owners of land, the principle would tend to break down if capitalization operates. For if ever the current and predictable levies are capitalized when land is bought, the new purchasers would continue to derive the benefit but would not have to pay for it. The burden would already have been placed upon the original owner. Moreover, to take the fire expenditures as an example, if the tax should tend under normal conditions to be shifted to tenants, the owners' properties would receive the protection, while the tenants would do the paying. Furthermore, if it be true, as suggested above, that land for building purposes in a region of good fire protection tends on that account to rise in value, the proper base for the levy of the tax would be uncertain. A major difficulty thus arises in allocating expenditures. It may be argued, for instance, that in the case of highways the general public and the consumers, in addition to the three groups whom Mr. Kendrick names, would profit from them. The cases, therefore, in which definite allocation could be worked out between groups would be limited. If there are difficulties in justifying a particular distribution of tax burden on the basis of benefit, such as have been seen above, they would seem to present almost insuperable obstacles to proper administration of the Kendrick proposal. It seems impossible to introduce such required exactitude into the distribution of the costs of government.

7. *Ibid.*, p. 146.

Another suggestion made by Professor Kendrick is that the tax be levied not upon capital value but upon net rental.⁸ This means changing the fundamental character of the tax from one based on capital to one based on income. Professor Kendrick sees four important advantages in this change of base: (1) It would be more equitable since there are more rental data than sales data to base the tax upon; (2) it would avoid the overtaxation, which occurs under our present capital-value assessments, of small properties and poor land; (3) it would avoid the excessive taxation which results from values based on over-capitalization or non-pecuniary considerations; and (4) it would solve the forestry tax problem by eliminating annual taxation of the capital value of the growing timber. One may admit all this and still hold that the American system is the better since it makes the real estate tax what in the opinion of many it ought to be — the cost of holding real property. If this is the correct attitude towards the tax, then lack of correspondence with the income of property loses significance.⁹

VIII. CONCLUSIONS

Altho many phases of real estate taxation have not been covered in this survey, the following conclusions seem warranted:

(1) The popular view that real estate is disproportionately taxed is overdrawn and the demand for relief is excessive.

(2) Because of certain characteristics of the real estate tax and because of depression conditions, some relief should be granted.

(3) Rural real estate probably deserves more relief than urban.

(4) It is exceedingly difficult to determine exactly how much relief should be granted, and the matter will inevitably be settled by pressure of conflicting interests.

(5) There are serious difficulties in extending relief to real

8. *Ibid.*, p. 72. This suggestion has also been made by others.

9. Jensen, *op. cit.*, p. 491; Newcomer, *op. cit.*, p. 66.

estate owners and tenants by indiscriminate adoption of new taxes.

(6) There is danger through such tax adjustments that the tax burden will be removed from those most able to bear it and placed on those least able.

(7) There is need of research into the methods of relieving the burden before precipitate readjustments are made.

(8) The retention of the capital value basis of taxing real estate is probably justifiable.

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HOUSING PROBLEMS

SUMMARY

The Home Owners' Loan Act of 1933. Complexity of the Problem, 129.— I. Relation to the National Economy, 133.— II. Governmental Policy, 135.— III. Housing Standards and the Family Budget, 137.— IV. The Financing of Housing Construction, 140.— V. Technological Problems, 142.— VI. Miscellaneous Problems, 148.

A number of events have served recently to focus public attention on housing and housing problems. The series began with the calling of the President's Conference on Home Building and Home Ownership in December, 1931. Following the Conference, and doubtless partly as a result of it, Congress passed in July, 1932, the Federal Home Loan Act,¹ a measure designed to relieve home owners who were about to lose the equity they had built up, or thought they had built up, in homes throughout the country, and to provide a permanent source of funds for the building or purchase of homes through the discounting or pledging of mortgages with a central institution authorized to issue bonds for sale to the public, based upon the pledged securities. The Emergency Relief and Construction Act of 1932² contained provisions which authorized the Reconstruction Finance Corporation to lend money to limited dividend companies which proposed to build houses. In some quarters, particularly in New York, this Act caused a great deal of comment and public interest.

Two acts passed under the present administration contain provisions which have increased the interest in the subject. The first was the National Industrial Recovery Act³ and the second the Home Owners' Loan Act.⁴ While the first of these has received wide attention, the provisions dealing with housing have been largely neglected. The Act provides that

1. Public Act No. 304, H.R. 12280, Seventy-Second Congress.

2. Public Act No. 302, H.R. 9642, Seventy-Second Congress.

3. Public Act No. 67, H.R. 5755, Seventy-Third Congress, approved June 16, 1933, especially Sections 202 and 203.

4. Public Act No. 43, H.R. 5240, Seventy-Third Congress, approved June 13, 1933.

the "Administrator, under the direction of the President, shall prepare a comprehensive program of public works which shall include among other things the following: . . . (d) construction, reconstruction, alteration, or repair, under public regulation or control, of low-cost housing and slum-clearance projects. . . ." The President is also authorized under Section 203 "(1) to construct, finance, or aid in the construction or financing of any public works project included in the program . . ." and "(2) . . . to make grants to States, municipalities, or other public bodies for the construction, repair, or improvement of any such project but no such grant shall be in excess of thirty per centum of the cost of labor and materials employed upon such project. . . ." These provisions mark a major departure in governmental policy in regard to housing. They offer a considerable incentive to municipalities to enter the field of public housing. The only obstacle that remains is that of limitations in city charters or in state legislation upon the powers of municipalities. These limitations have already been removed in some instances,⁵ and some municipalities are now preparing plans for slum clearance and the building of municipally owned houses to provide for those who are displaced by the clearance operations.

Next, by the passage of the Home Owners' Loan Act, Congress set up a governmental agency to deal directly with the problem of refinancing home owners who were in distress and about to lose their homes through foreclosure of underlying mortgages. Thus the series of legislative enactments has placed upon the Government or its agencies a large part of the burden of financing housing construction or ownership and has created a powerful incentive toward municipal construction of low-cost houses. Briefly, the nation has been committed by a national emergency program to a long-time policy of public housing.

This constitutes a major change in public policy in connection with the housing problem and raises immediately a

5. Act No. 23, Michigan Legislature, Session 1933, Senate No. 150, for example removed such restrictions on Michigan municipalities.

number of questions that are difficult to answer. For the housing problem is a very complex one. It will not yield to superficial treatment nor be exorcised by the power of a single method of approach. European countries have been wrestling with it in an aggravated form since the war and have employed a number of different approaches to its solution. But none has solved the problem. Very little is known about the results of the different efforts that have been made to solve the problem in Europe or in America, because very little research has been done in connection with the problem. In Europe the program has been uniformly one of action, and save in Germany, very little attention has been paid to some of the most important economic aspects of the problem. It is the purpose of the present paper to indicate some of these aspects that need further investigation for the guidance of both public and private policy in connection with it.

Studies of housing that have been made in this country consist for the most part of surveys of housing conditions in local communities.⁶ Valuable and indispensable as this type of survey is, it is directed only at one aspect of the housing problem, namely, the pathological, that is toward questions of overcrowding and the occupation of unsanitary or otherwise unsatisfactory housing facilities. The results obtained have been eloquent in portraying housing conditions among the lowest income groups who live in the most miserable houses. For this restricted purpose an adequate and satisfactory technique has been developed.⁷

The major weaknesses of such surveys have been two: first, they are limited in geographical scope; and second, they are restricted almost exclusively to the housing of the lowest income group, occupying the most unsatisfactory and miser-

6. See, e.g., the surveys of the Cincinnati Better Housing League, the Pittsburgh Housing Association.

7. A good description of the methods used in such a survey was prepared by Bernard J. Newman for the Research Committee of the President's Conference and circulated in mimeographed form. See also Schwann, Bruno, *Wohnungsnot und Wohnungselend in Deutschland*, Deutscher Verein für Wohnungsreform (Berlin, 1929). Also surveys by Commission for Housing and Regional Planning of New York, and by New York State Board of Housing.

able dwellings. In order to get a precise picture of the extent and nature of the housing problem, we shall probably be obliged to make a housing census, similar to those which have been made in Germany, Holland, and Sweden.⁸ This is distinctly a function of the Government and should be assumed by the Census Bureau. Previous to this national undertaking, however, some further experiments should be carried on in the collection of housing statistics.

Particularly notable in the United States are the results of surveys of Negro housing. Such surveys have been made in a number of cities, the major portion directed by the National Urban League.⁹ As a result, the description of housing conditions among members of the Negro race has become quite accurate. The major factors which influence and determine these conditions have been clearly indicated and reiterated. There is great need of similar surveys among other neglected racial groups, such as Mexicans, Indians, Japanese, and Chinese.¹

Many of the most difficult and significant aspects of the housing problem, however, have been seriously neglected. Some of these problems are sociological in character, some political and some technological; but many are primarily economic. It may be worth while here to review some of the more far-reaching of these questions. For purposes of discussion these may be divided into six groups: (1) the relation of housing construction to the national economy, (2) prob-

8. A description of the German Housing Census of 1927 will be found in the *Handwörterbuch des Wohnungswesens* (Jena, 1930), S. 606.

9. An exhaustive list of such surveys will be found in *Negro Housing*, Vol. VI, President's Conference on Home Building and Home Ownership (Washington, 1932), p. 260.

Frequent reference will be made in this paper to the materials published by the Conference. Special assistance has been obtained from the Report of the Committee on Research (Vol. XI, p. 253). While this paper covers some of the same materials as are contained in this report, a different approach and emphasis are employed. This paper will perhaps serve to indicate the indebtedness which future students of housing will owe to the Conference.

1. See *Farm and Village Housing*, Vol. VII, President's Conference on Home Building and Home Ownership (Washington, 1932), especially Chap. XIX and Appendix II.

lems of public or governmental policy, (3) problems of housing standards and the family budget, (4) problems of financing housing construction, (5) technological problems, (6) miscellaneous problems. These categories are by no means mutually exclusive; they are adopted solely for purposes of convenience in the following discussion.

I. THE RELATION OF HOUSING FACILITIES AND HOUSING CONSTRUCTION TO THE NATIONAL ECONOMY

The part played by housing as an industry and as a commodity in the national economy is a large one. In terms of both capital invested and annual additions to capital, housing facilities represent imposing figures. Complete statistics on residential construction in the United States are not available, but it can be estimated that not less than \$25,000,000,000 were expended for the purpose between 1921 and 1931.² This represents on the average between fifty and fifty-five per cent of the expenditures for all construction purposes.

In Germany from 1924 to 1930, residential construction absorbed, it is estimated, over RM 18,000,000,000.³ In England from 1920 to 1931, over 1,660,000 low-cost houses alone were built at a cost of not less than £660,000,000.⁴ So great an expenditure must occupy a large place in any attempt to plan the economic activities of a nation.

Fluctuations in the amount of capital expended annually for the construction of housing facilities doubtless have serious repercussions upon the whole economic structure. Uncertainty as to the economic soundness of the investment in the housing "plant" brings uncertainty and restrictions upon the whole credit structure. The tendency in the past

2. This estimate is based upon records of building permits in 247 cities compiled by the Bureau of Labor Statistics and of contracts awarded in 37 eastern states compiled by the F. W. Dodge Corporation and upon the increase in the number of dwellings between 1920 and 1930 reported by the Census. It is, however, a very rough estimate.

3. This is the estimate of the Institut für Konjunkturforschung, Berlin.

4. The number of houses built is taken from Statistical Abstract of the United Kingdom (1932), p. 43. An average cost of £400 for dwellings is assumed.

has been for the annual expenditure for construction of housing facilities to expand rapidly in periods of prosperity and to contract painfully during depression, creating unemployment in the building and allied trades, and accentuating the forces of depression.⁵ At the same time, vacancies increase, particularly in older structures, and undermine the earning power of capital invested. Capital becomes timid and hesitates to support further construction or to assist in refunding obligations falling due, and the whole industry becomes shaken by fear and hesitation.⁶

Since housing plays such an important rôle in the national economy, a need exists for more information upon its influence and its operation. Accurate methods of measuring the forces operating in the field must be devised. This involves the compilation and study of a number of different kinds of data, such as vacancies in properties of different types; changes in demand for different types of accommodation as influenced by changes in the size, composition, and ways of living of families; changes in the location of industries and their effect upon the housing of laborers and their families; volume of construction of different types of property; volume of residential loans, defaults, foreclosures, and discharges of indebtedness; the supply of newly subdivided and improved building sites in relationship to population growth and the rate of their absorption; and other similar studies.⁷ Study of

5. The significant rôle which the building industry might play in recovery if this tendency could be at least partially reversed is discussed by K. Pribram, in *International Labor Review*, Vol. XVIII, No. 3, p. 360, and No. 4 and 5, p. 509.

6. One of the striking facts about the current depression is that decline in residential construction preceded the more familiar phenomena by some two years. There is some evidence that this is usually the case (see Riggleman, John R., "Building Cycles in the United States, 1875-1932," a memorandum submitted to the National Conference on Construction, 1932), but the data are not complete enough to enable definitive conclusions to be drawn.

7. The Department of Commerce, Division of Building and Housing is attempting to correlate and standardize vacancy surveys made in different cities throughout the country. (See Report, mimeographed, entitled "Comparisons of Residential Vacancy Survey Reports in 46 Towns and Cities," 1933.)

See also "Local Construction Inventories" and "Report of Com-

these data must be undertaken to determine how they may be utilized in assigning to residential construction its proper rôle in the economic activity of the nation.

Studies are also needed on the relationship between the annual net income and the portion of that income that should be devoted to the creation of new housing facilities. In European countries the proportion of expenditure on new housing is very large. Thus in Germany since 1924, capital investments in housing have amounted to about fifty per cent of the total of all new capital issues and are equal to approximately sixty per cent of all Germany's foreign indebtedness. The expenditure in England and Wales from 1919 to 1929 is more than twenty per cent of the net proceeds of the income tax for the same period, and is the equivalent of twelve per cent of the paid up capital of all registered joint stock companies in England in 1930.⁸

The study of taxation policies as instruments of social control has an important place in this connection, for taxation policies can very largely affect the direction into which capital flows. Tax exemptions and "graded tax plans" must be scrutinized in the light of this objective. In a similar way the question of levying special assessments needs to be examined. Theoretically the imposition of special assessments appears equitable; in practice its effects need careful scrutiny, particularly in connection with home ownership.

II. GOVERNMENTAL POLICY

High costs of building, difficulties of financing, housing congestion, and unstable rental levels have led to governmental intervention in nearly all the countries of Western Europe and in New York and California in America.⁹ The

mittee on Business Reports, Statistical and Trade Information" of the National Conference on Construction (Washington, 1932, mimeographed and circulated privately). Also the excellent study published by the Federazione Nazionale Fascista Della Proprietà Edilizia entitled "La Mobilità Della Popolazione All'Interno Delle Città Europee" by Roberto Bachi. Also "Il Mercato Edilizia" published quarterly.

8. Statistical Abstract of the United Kingdom (1932), pp. 167, 230. The basis for the estimate of expenditures is given above.

9. A review of the New York and California plans will be found in

experience of these governments represents a fertile field for economic study, and the statistical and descriptive material is fairly abundant.

In England, intervention has taken the form of direct subsidy to builders or owners, and the active construction and operation of housing facilities by local government units. In France, governmental credit is extended at low rates of interest for forty years through semi-official and official local housing organizations. In Germany, special tax funds have been utilized to extend credit on second mortgage security at low rates of interest, and municipalities have granted other subsidies or themselves have built dwellings. Holland has granted both subsidies and credits. Sweden and Denmark extend credits through public utility or coöperative societies. Other countries use variations of one or more of these plans.¹

With more than ten years of experience, some of the results are easy to appraise, while others are obscure. One of the questions raised is the effect of intervention upon the cost of building. There is some evidence of a tendency for housing subsidies to be absorbed in the cost of building.² While measures are taken to prevent this occurrence, they do not appear to have been altogether successful.

Another problem connected with governmental subsidies is that of the effect of subsidies upon the expenditures of families subsidized. It has been repeatedly stated in European housing literature that government subsidies to housing have not been effective in reducing rents in new houses to the point where they are available to members of lower income. Fisher, Ernest M., "Housing Legislation and Housing Policy in the United States," *Michigan Law Review*, Vol. 33, No. 3 (January, 1933), p. 320.

1. A brief summary of the policies of various European states since the war will be found in *European Housing Problems Since the War* (Geneva, 1924) and *Housing Policy in Europe* (Geneva, 1931), both published by the International Labor Office.

2. The data on this point are not conclusive, but they are sufficiently suggestive to warrant careful study. Some unpublished material compiled by H. Van der Kaa, Chief Inspector of Housing for the Netherlands, indicates some tendency for building costs to fluctuate with subsidies. Other data need to be collected on the point, with particular reference to the question of where the extra costs are absorbed.

groups.³ The almost universal experience is that the subsidized houses are occupied by families whose incomes are considerably above the subsistence level. For these families the effect of the subsidy would appear to be to release a portion of their income for expenditure in other directions. In Amsterdam, for example, the houses built for those who are removed from slum clearance areas, subsidized by both city and state, are all wired for radio installations and the majority of the tenants have radios. If such diversion of expenditures is common, housing subsidies do not subsidize housing at all, but other items for which income is spent.

Certain sociological and psychological aspects of subsidies are also important. There can be no question of the advantages of higher standards of housing facilities which it is the purpose of subsidies to produce. When these facilities, however, are supplied at less than market cost, as represented by an economic return upon the capital invested, troublesome questions arise. The very fact that subsidized housing accommodations are readily accepted by members of higher income groups raises the question of the desirability of subsidization. The whole question needs careful examination before dependable judgments can be formed as to the desirability or undesirability of governmental intervention in housing; and if desirable, how it should be exercised.

III. HOUSING STANDARDS AND THE FAMILY BUDGET

Far too little study has been given to the problems of housing standards and their relation to the family budget. The usual approach to the question of housing standards is to establish *a priori* certain minima which all houses must meet in order to be considered habitable. These minimum standards are established wholly without reference to costs and consequent ability of members of lower income groups to pay a rent proportionate to the costs. A more reasonable approach would appear to be that of determining what standards can

3. Typical of the statements is the one found in the Eleventh Annual Report of the Ministry of Health, 1929-1930 (London, H. M. Stationery Office, 1930), p. 81.

be realized within certain predetermined cost limits. Unless all pretense of keeping housing of the lower income groups upon an economic basis is to be abandoned and some other basis such as governmental subsidies introduced, this approach would appear to be imperative. So long as housing is to remain on an economic basis, it is futile to contend for minimum standards that are impossible of realization. If realizable minimum standards prove to be so low as to endanger the public health, safety, or general welfare, the obvious solution indicated is that of raising the general wage level. The setting up of standards without consideration of income and ability to pay tends to create a false conception of the standard of living that is generally attainable and supportable by lower income groups. This is one of the criticisms that may be leveled at governmental subsidies; they tend toward establishing a standard of living in respect to housing that cannot be supported. The standards thus set up cause the diversion of disproportionate amounts of capital into housing, at the expense of other factors in the economic structure.

An examination of minimum standards established by governments and by housing reform organizations reveals a wide divergence between different countries and the inclusion in nearly all cases of items that have but slight, if any, relation to health or safety and but little to general welfare. They represent rather certain desiderata with respect to general comfort and convenience. In many cases they include obvious luxuries.⁴ This is desirable, of course, so long as the standards are not placed so high as to preclude economic operation of the properties. When they do so, consideration should be

4. Cf., e.g., the minimum housing standards prepared by the National Conference of Charities and Corrections in 1912, quoted and discussed by Wood, Edith Elmer, *Recent Trends in American Housing* (New York, 1931), p. 39; the report of the Committee on Standards and Objectives, Vol. XI, President's Conference (Washington, 1932). English standards are discussed in memoranda issued by the Ministry of Health and in publications of the National Housing and Town Planning Council; the French, in Le Clerc and St. Vimbault, *Traité Pratique des Habitations à Bon Marché* (Paris, 1929), and in memoranda issued by the Ministère du Travail, de l'Hygiène, et de la Prévoyance Sociales.

given to their revision. The approach from the point of view of cost limitations would appear to assure adoption of more attainable standards.

But before such cost limitations can be established much more must be known about the place occupied in the family budget by expenditures for housing. Previous studies of family budgets have been very unsatisfactory in the treatment of these expenditures.⁵ The data are essential to a clear understanding of the problem. While what people *do* pay for housing may not be a true measure of what they *can* pay, it is invaluable for an understanding of spending habits and preferences. Expenditures for housing apparently are less in most income groups than families in those groups can afford to pay.⁶ But what they can afford to pay depends upon distribution of income to other items than housing. The problem therefore is really one of all the items in the budget.

Expenditures for housing are one manifestation of the psychological attitude of families toward their housing problems. Very little dependable information is available on this question, notwithstanding its importance to the whole problem. It needs especial attention among the lower income groups. It is generally assumed that these groups are unhappy and are exerting every effort to improve their housing conditions. This assumption calls for very serious examination. It has been found in several European countries that one of the most difficult problems connected with slum clearance is that of overcoming the resistance of slum dwellers to any change. Their resistance does not necessarily arise from fear of having to pay higher rents, for in most cases alternative accommodations are made available at the same rent.

5. A review of existing studies is given in Home Ownership, Income, and Types of Dwellings, Vol. IV, President's Conference on Home Building and Home Ownership (Washington, 1932), p. 58.

6. See, e.g., Jones, D. Caradog, and Clark, Colin G., "Housing in Liverpool," Journal of the Royal Statistical Society, Vol. XCIII (1930), pp. 489 ff., esp. p. 509 and p. 567, where it is estimated that "no less than 300, or 55 per cent, of all overcrowded families in our sample, could *probably* afford — and a further 18, or 3 per cent, could *possibly* afford — to pay more rent than they actually pay for the houses or tenements they occupy."

It appears to arise rather from contentment with conditions as they are, from hesitation to break up habitual associations and established habits. Slum dwellers even in America may live in undesirable houses, but when they appear on the street many of them are clothed in silk stockings and fur-trimmed coats.⁷ Much more needs to be known about spending habits and psychological attitudes toward expenditures for housing before conclusions can be drawn as to the best method of dealing with the housing problem for these groups.

IV. THE FINANCING OF HOUSING CONSTRUCTION

Closely connected with these problems are those of financing. In fact, many methods of financing carry burdens of interest, amortization, premiums, and discounts that greatly enhance the costs of shelter. Unwise financial arrangements have caused failure of many housing enterprises and have brought heavy losses to many families who have attempted to become home owners.

Studies of the financial aspects naturally divide themselves into two groups: those dealing with the financing of private homes occupied by or intended for occupation of their owner, and those addressed to the financing of capitalistic enterprises which provide homes for rent. The methods of financing these types are different and the problems involved are distinct.

The most important institutions involved in financing homes are the building and loan associations and the life insurance and trust companies. All of these institutions advance credit upon the security of a first mortgage covering from fifty to sixty per cent of the value of the property. The problems which they meet are those of accurate appraisal of both the moral and financial risk, and those of adjustment to anachronistic legislation covering foreclosure.⁸

7. It has been suggested that this attitude is due in no small measure to the fact that the street has supplanted the home as the center of social contacts.

8. Descriptions of the methods and practices of these institutions are numerous and need not be cited in detail. Current practices of building and loan associations are discussed in *Building and Loan Annals*, by the

But the more acute problems for the home owner appear in connection with financing above the first mortgage. It is rarely that the home owner can supply all the cash to bridge the gap; when he is obliged to resort to the usual sources of credit for this purpose, he is obliged to pay a heavy toll, if indeed he is able to find the credit at all. How this toll can be reduced, the elements that force its exaction, and the extent to which additional credit above the first mortgage is desirable and under what conditions, are problems that need careful inquiry and analysis.

In the central portions of larger urban communities individual ownership of a separate dwelling inevitably gives way to some form of multiple occupancy. Provision of facilities for multiple occupancy is distinctly a capitalistic enterprise. The forms of organization it takes can be grouped as (1) individual ownership, (2) corporation ownership, (3) co-operative ownership, and (4) combinations of these, such as corporation ownership with long-term lease to individuals. Corporations are organized upon very different bases, such as the ordinary commercial corporation, the limited dividend company, the philanthropic organization, and so on. An analysis of the conditions reasonably prerequisite to success with these various forms of organization, their limitations and advantages, is very much needed. Coöperation, for example, has been very successful in a number of cases and has failed in others.⁹ Doubtless such factors as the racial and income characteristics of groups, homogeneity of economic and cultural background, as well as the pervasive factor of

United States Building and Loan League. A convenient summary of the financing problem will be found in *Home Finance and Taxation*, Vol. II, President's Conference (Washington, 1932), pp. 1-98.

9. See, e.g., Emmerich, Herbert, "The Problem of Low-Priced Coöperative Apartments," *Journal of Land and Public Utility Economics*, Vol. IV, No. 3 (August, 1928), p. 225, for a discussion of some of the limitations on this form of organization. Description of some of the coöperative enterprises will be found in the *Monthly Labor Review*, Vol. XXVII, No. 2 (August, 1928), pp. 209-226; Vol. XXX, No. 5 (May, 1930), pp. 1065-66; Vol. XXXII, No. 1 (January, 1931), pp. 47-51; and in "Coöperative Movements in the United States," Bureau of Labor Statistics Bulletin, No. 437 (Washington, 1927).

management, all exert a powerful influence upon the success of a cooperative enterprise. Limited dividend companies, likewise, have varied histories and appear to be affected by influences that can be discerned and enunciated.¹ There is urgent need for the study of these forms of organization as financial expedients.

Studies of financing, however, are very difficult to make. Much of the material needed would have to be secured from the private records of financing agencies, and access to these records is not easy to obtain. Two of the most vital questions are those of costs of financing to the borrower, and losses sustained by the lender. Costs to the borrower, of course, include costs of examination of title, attorney's fees, recording costs, brokerage commissions and discounts as well as interest charges. While figures purporting to represent costs have been published, most of the materials available are not dependable because they have been merely estimates supplied by lending companies or compilations made after circulation of general questionnaires. The importance of the problem warrants much more accurate procedure. Likewise, a careful analysis of losses sustained by lenders is essential, and this also requires access to the records of lending companies. Preliminary studies indicate that losses arise from sources quite different from those commonly mentioned, even by men who are engaged in the lending business.²

V. TECHNOLOGICAL PROBLEMS³

The technological problems in housing center in the activities of the city planner, the architect, the engineer, and the

1. Two of the earliest limited dividend companies organized in this country still are active; viz., the Boston Coöperative Building Company, established in 1871 and the City and Suburban Homes Company, established in New York in 1896.

2. This statement is based upon unpublished material collected by Roy J. Burroughs in the preparation of a doctor's dissertation in the Graduate School of the University of Michigan.

3. For a brief summary of the present status of technological developments, see the report of the Committee on Technological Developments, Vol. XI, President's Conference (Washington, 1932), and references there cited.

builder. The result to be attained by technological research is that of reduction of housing costs. During the period in which the introduction of machinery and mass production effected astonishing reduction of costs in most of the major industries, the costs of producing housing facilities saw no major decline for probably three or four decades prior to 1930. Practically no improvements in methods of production were introduced during that period except in connection with the erection of large and luxurious apartment houses. Labor in the building trades became strongly unionized, and during the building boom in 1922-29 forced wages constantly higher and higher, and at the same time adopted measures limiting the productivity of labor. Jurisdictional regulations grew more and more rigid and minute. Union opposition asserted itself against the introduction of labor-saving machinery and cost-reducing methods and devices — in most cases successfully.⁴ The costs of residential construction have consequently grown more and more disproportionate to costs in other industries. As a result, it may be questioned whether the rank and file of labor in other industries can purchase with the available portion of their income the product of labor in the building trades. It is a striking fact that practically no building of new structures for lower-income groups was attempted in the United States between 1920 and 1930.

At the present time experimentation is being carried on in both Europe and America with a number of types of material designed to reduce the cost of building. In Germany this has probably gone further than it has anywhere else. Experiments with materials and methods of construction were at one time subsidized by the German government,⁵ and architects have made extensive and useful studies of lay-out and exterior design⁶ which have resulted in reduction of building

4. See Haber, William, *Industrial Relations in the Building Industry* (Cambridge, 1930), esp. Chaps. VI to VIII.

5. Through the Reichsforschungsgesellschaft für Wirtschaftlichkeit im Bau- und Wohnungswesen a number of reports have been issued, but this organization has finally been abandoned.

6. See Klein, Alexander, "Judging the Small House," *Architectural Forum* (August, 1931), Vol. LV, No. 2, p. 166.

costs without sacrifice of necessary space or amenities. A copper house has been developed in Germany which, it is said, can be produced in quantity at a very large reduction in cost and yet provide very satisfactory single-family houses.⁷ Experiments with steel in England, Germany and America, and with stone slabs in Germany have not yet produced any far-reaching results.⁸

The principal obstacle to progress in this direction arises from the fact that under present methods the residential structure is an assembled product and not a manufactured one. The different industries supplying materials from which the product is assembled therefore have only a very minor interest in the structure as a whole. Their research efforts have been bent toward discovering competitive advantages or additional uses for that portion of the material which they furnish. The most satisfactory results will probably not be obtained until a unified approach is made to the problem of building the house as a whole. There seem to be good grounds for believing that large-scale pre-fabrication of unit parts which will only have to be assembled at the site will be an early development and will result in large savings of construction costs.

An important contribution to reduction in costs might be effected through large-scale operations. Many well informed persons consider that the greatest hope of substantial reduc-

7. This house, which has been developed by Professor Walter Gropius, was exhibited at the International Housing Exposition in Berlin and at the Colonial Exposition in Paris during the summer of 1931.

8. See reports of the Reichsforschungsgesellschaft für Wirtschaftlichkeit im Bau- und Wohnungswesen and of the Building Research Station of the Department of Scientific and Industrial Research (London).

Also report of Committee on Technological Developments, Housing Objectives and Programs, President's Conference (Washington, 1932), xi, 27ff.

Further developments in America are summarized by Roger W. Sherman in "New Materials and Methods in Country House Construction," *Architectural Forum*, Vol. XVIII, No. 3 (March, 1933), p. 225; also *Fortune*, Vol. VII, No. 4 (April, 1933), pp. 52-7, where developments in pre-fabrication are described.

tion of costs lies in this direction,⁹ especially since these operations offer the best opportunity for utilizing the latest technical developments. Opinion is not uniform on this point, however.¹ No attempt has been made to determine the point of maximum savings through large-scale operation. The experience of the Vienna City Council indicates maximum efficiency of operation in connection with projects providing homes for about five hundred families. Other European cities where large-scale operations have been carried on since the war should offer abundant material for study of the possible savings.

There remain certain obstacles that must be overcome before large-scale operations can be carried on extensively in this country. The principal apparent difficulties can be summarized under three headings: (1) labor union regulations, (2) difficulties of land assembly, (3) legislative restrictions.

Labor union jurisdictional regulations are especially onerous in the building trades. They grow to a large extent out of historical conditions. Technological advances that involve a disregard or change of jurisdictional regulations meet union opposition. In similar manner, the introduction of labor-saving machinery or methods that are intended to increase labor productivity are opposed. The attitude of the building trades unions is likely to be a serious obstacle to the adoption of any far-reaching innovations.

The difficulties of land assembly arise from the widely distributed ownership of small parcels of land, not only in the built-up areas of our cities but in the outlying unbuilt areas as well. Under existing legislation widely distributed ownership enables the owner of a single strategically located parcel to prevent large-scale operations in the immediate vicinity by either refusing to sell or by demanding an exorbitant price. It would seem possible to frame legislation that would under

9. Including the Committee on Large-Scale Operations of the President's Conference. See *Slums, Large-Scale Housing, and Decentralization*, Vol. III, President's Conference on Home Building and Home Ownership (Washington, 1932), esp. pp. 85ff.

1. *Ibid.*, p. 161.

proper safeguards extend the power of eminent domain so as to overcome this difficulty.

The purpose of building codes and other building regulations is to protect the public health, safety, and morals, and to promote the general welfare. It has been found necessary to enact such legislation because of the disregard for these considerations on the part of many who build. Such codes now exist in most of the larger cities, and several codes are state-wide in their application. They serve a very useful purpose — probably an essential one — but the majority are arbitrary in their standards, obsolete in their provisions, or excessive in their requirements. Building codes are still in force that were adopted as early as 1894, before the general practice of the use of steel in construction. According to the Building Code Committee of the Department of Commerce, many of the requirements of current codes are excessive or arbitrary.² Cases can doubtless be found in which codes have been enacted at the dictation of building supply dealers and members of the building trades unions. In such instances, building code legislation and enforcement have probably represented official participation in a widespread "racket."

The first attack on costs might consist of an analysis of the portion of total costs which is represented by direct labor at the site. It is generally supposed that direct wages at the site absorb from forty-five to sixty per cent of the cost of building. This is a very rough estimate and needs refinement. Additional studies are needed of ways and means of stabilizing employment in the building trades so that hourly wages can be reduced without any reduction of annual income. Progress has been made on the problem of winter construction,³

2. See *House Design and Construction*, Vol. V, President's Conference (Washington, 1932), p. 85, and references there cited.

3. See *Report of Committee on Technological Developments*, op. cit. Also "Methods of Stabilizing Work in the Building Industries," Chapter XII, *Business Cycles and Unemployment*, An investigation under the auspices of the National Bureau of Economic Research made for a Committee of the President's Conference on Unemployment (New York, 1923), p. 174. Also, "Causes of Seasonal Fluctuations in the

but small operators find it difficult to operate on such a schedule as will make it possible to take advantage of these developments. A larger amount of conscious control and planning may be necessary in order to stabilize conditions and to enable the largest possible reduction in costs with the minimum reduction of income to labor in the building trades.

Searching analysis is also needed in connection with all the operations involved in residential construction. Present knowledge of construction costs is exceedingly fragmentary and casual. Costs are usually quoted in round figures per cubic foot of content of the structure or per square foot of floor area. Estimates are also made, of course, upon the basis of quantity surveys and specifications, but these are quite rough approximations. It would appear important to secure complete itemized records of labor and material costs, broken down into small items and operations in order to determine precisely where costs arise. If this were known, costs could be attacked much more intelligently. Such a study might well include construction costs per family of various types of structures, such as single-family dwellings, row or group houses, and apartments.⁴ It would also seem important to study the effects on costs of construction of variations in architectural design, floor lay-out, and finish, as well as in the use of different materials.

An excellent opportunity exists for a study of this type in connection with low-cost housing projects in America. A number of such projects are in operation, but no record of their experience has been compiled. In order to make such a compilation most useful, a system of uniform accounts would have to be devised into which the records of each enterprise could be written, and in the light of which they could all be compared. Such a study would prove of prime usefulness to future projects and should give much greater insight than is now possible into the factors that determine costs both of Construction Industry," *Monthly Labor Review* (September, 1931), Vol. 33, No. 3, p. 6.

4. An excellent beginning of such a study is found in *House Design and Construction*, Vol. V, President's Conference (Washington, 1932), pp. 16 et seq.

construction and of operation and ultimately determine success or failure of housing enterprises.⁵

VI. MISCELLANEOUS PROBLEMS

A number of miscellaneous problems suggest themselves. The first of these is the problem of industrial housing, or housing by employers. The objective of employers in furnishing housing facilities for their employees is to reduce production costs by reducing labor turnover and by increasing the efficiency of labor. In some instances doubtless the principal motive has been philanthropic, the desire to improve the living conditions of labor regardless of the influence such an improvement might have upon production costs. But in most instances employers are concerned with the questions of rate of return upon capital invested in housing facilities, the effect of housing facilities upon labor efficiency and turnover, the tendency for employer housing to "tie" labor, and similar questions. Until these questions are answered, employer housing is not likely to increase greatly.

Another problem is that of stabilizing the investment of capital in housing facilities. It is quite generally recognized that one of the most important influences affecting the value of residential properties is that of changes in the character of the neighborhood. The causes of these changes are very obscure. If neighborhoods could be stabilized, capital invested in residential property could be expected to produce a stable income over a much longer period of years, and the costs of housing could be greatly reduced because of the longer period during which capital costs could be written off. Many of the causes of depreciation could undoubtedly be forestalled, but neighborhood deterioration appears to be at once the most potent and the most elusive of these causes.

It is impossible within the scope of this article to discuss the various measures which have been taken in attempting to

5. The New York State Board of Housing has published valuable records covering properties under their control. See their annual reports, especially for 1931 (Legislative Document, No. 84) and for 1932 (Legislative Document, No. 84).

deal with this problem. The problem is one of the most complex in the social and economic life of the nation. The securing of more adequate housing facilities for members of the lower income groups is one of the most challenging problems of today. It will not wait for solution. Following the failure of private initiative to solve the problem satisfactorily, government is rapidly assuming the responsibility. It is important that a more adequate basis for determining policies should be constructed. This task involves research into the experience of private individuals and governmental agencies with the problem, and a wise interpretation of that experience. It may be laid down dogmatically perhaps that no simple or single remedy will suffice. The problem must be attacked from several different points of view at the same time, and only from experience so gained will it be possible to arrive eventually at a comprehensive solution.

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RECENT SOCIAL TRENDS

Among the expansive phenomena which marked the period of post-war prosperity — an era already beginning to seem a trifle fabulous — one of particular interest to social scientists was the development of large-scale production of research in their own field. Directed by scholars of vast energy and organizing ability, various bureaus and foundations proceeded to spend large sums in the turning out of elaborate studies of matters of economic and social significance. In most cases these investigations were marked by the generous use of quantitative, above all statistical, methods; and the attack was frequently historical, in that the changes of various indices through time were emphasized. Pooled intellectual resources were typically employed: even when a study was mainly the work of a single scholar its conception and gestation were ordinarily supervised by a committee; and a considerable staff of computers and research assistants was usually involved.

Of the various publications which were the result of all this, none attracted more widespread attention than the series which owed its existence primarily to Herbert Hoover. From the outset of his career as Secretary of Commerce and continuing through his term as President, Mr. Hoover was active in bringing about the coöperative study, sometimes under governmental, sometimes under private sponsorship, of various economic problems. At first the investigations were limited to relatively narrow matters. But in 1929 appeared the two-volume study of Recent Economic Changes in the United States which undertook to present a well-rounded survey of the American economic scene as a whole.¹ Now comes what one may assume to be the final work of the series,

1. Recent Economic Changes in the United States: Report of the Committee on Recent Economic Changes of the President's Conference on Unemployment, Herbert Hoover, Chairman. Including the reports of a special staff of The National Bureau of Economic Research, Inc. 2 vols. New York and London (McGraw-Hill Book Co., Inc.) 1929.

a companion study to that just mentioned, a report even more comprehensive in character, entitled *Recent Social Trends in the United States*.²

It is interesting to compare these two general works. *Recent Economic Changes* was the report of a committee of the President's Conference on Unemployment of 1921. At first chairmaned by Mr. Hoover himself, but later by Mr. A. W. Shaw, this group was made up predominately of leading representatives of business, agriculture, labor, and of the federal administration.³ The basic investigations, however, were made by the long-established National Bureau of Economic Research, which, however, acknowledged the assistance of what was at the time considered "an unprecedented number of governmental and private agencies."

The introduction, twelve chapters, and concluding review, which were prepared by the Bureau, covered 934 pages, and were drafted by authorities who were partly members of the Bureau's regular staff and partly persons specially appointed for the purpose.⁴ About two-thirds of these investigators were professional scholars. The report of the Committee proper ran to but seventeen pages and was marked, as was indeed the whole document, by a conservative tone. "Each generation," the Committee wrote, "believes itself to be on the verge of a new economic era, an era of fundamental change, but the longer the committee deliberated, the more evident it became that the novelty of the period covered by

2. *Recent Social Trends in the United States: Report of the President's Research Committee on Social Trends*. With a foreword by Herbert Hoover, President of the United States. 2 vols. Pp. xcv+xvi, 1568. New York and London (McGraw-Hill Book Co., Inc.) 1933. \$10.

3. The Committee included, in addition to those mentioned, Walter F. Brown, Renick W. Dunlap, William Green, Julius Klein, John S. Lawrence, Max Mason, George McFadden, Adolph C. Miller, Lewis E. Pierson, John J. Raskob, Louis J. Taber, Daniel Willard, Clarence M. Woolley, Owen D. Young, and Edward Eyre Hunt.

4. They were: Edwin F. Gay, Leo Wolman, Dexter S. Kimball, L. P. Alford, Willard L. Thorp, John M. Gries, William J. Cunningham, E. S. Gregg, Melvin T. Copeland, Henry S. Dennison, Edwin G. Nourse, Frederick C. Mills, O. M. W. Sprague, W. Randolph Burgess, James Harvey Rogers, Morris A. Copeland, and Wesley C. Mitchell.

the present survey [1922-1929] rested chiefly in the fact that developments such as formerly affected our old industries have been recurring in our new industries. The changes have not been in structure but in speed and spread."⁵ And again: "There is nothing new about these problems; the accelerated rate of readjustment is what has recently engaged the attention of wage earners and management."⁶ For the solution of such problems, the Committee was content to urge reliance upon the "principle of equilibrium," the "technique of balance," as capable of being developed under "the broadening influence of America's creative minds — the minds of the leaders in Government and in education, in research, in management and in labor, in the press, and in the professions."⁷ It is noteworthy that, writing at what was not yet realized to be the peak of a period of unprecedented prosperity, the Committee and its investigators alike maintained a note of sober restraint. "Our situation is fortunate," concluded the former, "our momentum is remarkable. Yet the organic balance of our economic structure can be maintained only by hard, persistent, intelligent effort; by consideration and sympathy; by mutual confidence, and by a disposition in the several human parts to work in harmony together."⁸ Professor Mitchell brought the main body of the work to a close with a passage in similar vein. "Whether the recent rate of progress in the arts of industry and business can be maintained is another uncertainty," he wrote. "Past experience... suggests that the pace will slacken presently, and that years may pass before we see such another well-maintained advance.... All that is certain is that whatever progress in efficiency we continue to make must be won by the same type of bold and intelligent work that has earned our recent successes."⁹

5. *Recent Economic Changes*, I, ix.

6. *Ibid.*, I, xvii. The similarity of contemporary phenomena to those of the past in the United States was also emphasized in the main body of the study by Professors Gay and Mitchell. (*Ibid.*, I, 6-12; II, 841-5.)

7. *Ibid.*, I, xx, xxii.

8. *Ibid.*, I, xxii.

9. *Ibid.*, II, 910.

Recent Economic Changes was hardly off the press when President Hoover turned his mind to an even greater project, "a national survey of social [including economic] trends in the United States."¹ To this end, in December of 1929, he appointed a special committee, this time made up exclusively of social scientists, and including Wesley C. Mitchell, chairman, Charles E. Merriam, Shelby M. Harrison, Alice Hamilton, Howard W. Odum, and William F. Ogburn. This committee, instead of employing any existing research body, put the work of investigation in the hands of a special executive staff consisting of Professor Ogburn, Director, and Professor Odum, Assistant Director of Research, and Edward Eyre Hunt, Executive Secretary. Provided with a generous grant of funds by the Rockefeller Foundation, this staff procured the assistance of some thirty-eight authorities in the writing of the twenty-nine substantial chapters which were to serve as the basis of the Committee's report. These authors, almost without exception professional scholars, were directly aided by a staff of collaborators and special research assistants, comprising over one hundred "educators, scientists, and sociologists." In addition, coöperation of one sort or another was provided by so many federal departments and bureaus, private research bureaus and organizations, and individuals that thirteen closely printed pages are required for acknowledgments.

There can be no doubt that the work of this group constitutes the most impressive piece of large-scale production by massed scholarship which has yet been turned out by social scientists in the United States. The distinguished directing committee includes past presidents of The American Economic Association, The American Statistical Association, The American Sociological Society, and The American Political Science Association. The men who did the research are established scholars, representing the various social sciences. The Report itself is massive, and it is supported by thirteen extended monographs, published separately.² No

1. Mr. Hoover's Foreword in *Recent Social Trends*, I, v.

2. These monographs are: *Population Trends in the United States*, Warren S. Thompson and P. K. Whelpton; *Communication Agencies*

one could blame the lay reader for assuming that in these volumes American social science has spoken!

As compared with the report on Recent Economic Changes, the report on Recent Social Trends seems definitely less judicial in tone. The former, appearing in a period of great prosperity, had taken the long look and sounded a solemn note of warning; the latter, published in the midst of a serious depression, emphasizes contemporary difficulties and sounds the warning much more loudly. Indeed, the tone of the Committee's sixty-five page review of its staff's findings seems occasionally shrill, with its reiterative references to "complexity," "tension," and "peril." In their stress upon the disequilibrating effects of change and the necessity of balance-bringing readjustments, in their insistence upon the importance of continued research and coöperative thinking, the two reports agree. But the present volumes are not marked by reassuring references to successful surmountings of earlier difficulties in our history, nor, as Mr. Hoover justly points out, is much attention paid to "elements of . . . stability in our social structure."³ While the Committee on Economic Changes did not suggest any need for radical modifications in our social order, the present group declares that "willingness and determination to undertake important integral changes in the reorganization of social life, including

and Social Life, Malcolm M. Willey and Stuart A. Rice; Problems of Education in the United States, Charles H. Judd; The Metropolitan Community, R. D. McKenzie; Rural Social Trends, J. H. Kolb and Edmund de S. Brunner; Races and Ethnic Groups in American Life, T. J. Woofner, Jr.; Political, Social and Economic Activities of Women, S. P. Breckinridge; Labor in the National Life, Leo Wolman and Gustav Peck; Americans at Play, J. F. Steiner; The Arts in American Life, Frederick P. Keppel and R. L. Duffus; Health and Environment, Edgar Sydenstricker; Trends in Public Administration, Leonard D. White; The Growth of the Federal Government — 1915-1932, Carrol H. Woody. All are published by the McGraw-Hill Book Co., Inc.

3. I, v. The Committee itself recognizes that "a work dealing primarily with social trends may give an exaggerated impression of topsyturviness in current life." And it expresses the opinion that "here and there chapters redress the balance by calling attention to features of culture which maintain themselves with little modification among the welter of new phenomena." (I, xciv.) These features are, however, given slight attention in the Committee's own review of findings.

the economic and political orders," is "indispensable" to a "successful, long time constructive integration of social effort."⁴ It warns us of the serious dangers of the possible future emergence of "dictatorial systems in which the factors of force and violence may loom large," of "violent revolution, dark periods of serious repression of libertarian and democratic forms, the proscription and loss of many useful elements in the present productive system."⁵ "Fully realizing its mission," the review of findings solemnly concludes, "the Committee does not wish to assume an attitude of alarmist irresponsibility, but on the other hand it would be highly negligent to gloss over the stark and bitter realities of the social situation, and to ignore the imminent perils in further advance of our heavy technical machinery over crumbling roads and shaking bridges. There are times when silence is not neutrality, but assent."⁶

This foreboding note is particularly interesting when compared with the sober but confident tone of the Report on Economic Changes. Altho the earlier Committee was largely made up of men of affairs, and the later of scholars, the research staffs of the two reports overlap somewhat. Indeed, Professor Mitchell, the chairman of the 1933 Committee, was co-director of research for that of 1929, and in the review of findings which he prepared for the earlier group, gave evidence of no particular alarm for the future. What accounts, then, for the change in view, the increasing concern for the days ahead? Is it new evidence, unknown to the earlier investigators? Is it the depressing influence of hard times? Or is it, after all, a reflection of a different type of committee, including different personalities? To these questions we shall later return.

In appointing the Committee on Social Trends it was Mr. Hoover's avowed "desire to have a complete, impartial examination of the facts."⁷ The Committee itself sought to obtain

4. I, lxxi.

5. I, lxxiv.

6. I, lxxiv-lxxv.

7. I, v.

from its collaborators "records, not opinions." "As sharers in this enterprise," it declares, "one and all have striven faithfully to discover what is, and to report their findings uncolored by their personal likes and dislikes, or by their hopes and fears of what may be. . . . [They] have been bound rather strictly by the limitations of scientific methods."⁸ No one can doubt, I think, that the Committee's aim has, on the whole, been successfully achieved. In the various contributed chapters interpretations of facts are indulged in cautiously, with much qualification, and prophecies are guardedly made. Only in the Committee's review of findings are the bars measurably let down, when the Committee makes it clear that it believes that "constructive social initiative," rather than what it calls "a policy of drift," is needed.⁹ It is to this type of passage that Mr. Hoover no doubt refers when he declares that "the Committee's own report . . . reflects their collective judgment of the material and sets forth matters of opinion as well as of strict scientific determination."¹

In laying out its plan of work, the Committee recognized that it was subject to certain handicaps. The very magnitude of the task with which it had been presented constituted a major problem. It was in consequence of this, one supposes, that it felt forced to interpret the terms of its mission rather strictly and to limit its attention mainly to events of the thirty years culminating in 1930, and to those more dynamic elements which it felt to be implied by the word "trend." Attention was deliberately focussed on the "significant changes . . . in American life since the beginning of the century."² Certain whole topics, moreover, were excluded for one reason or another. "The current business is not explained," the Committee admits.³ Moreover, determination to include no material which was not subject to scientific verification led to further delimitations, particularly with regard to social phenomena in which human emotions are

8. I, xciiif.

9. I, lxxiv.

1. I, v.

2. I, xciv.

3. I, xciii.

largely involved.⁴ Despite all this, so many topics are treated that limitations of space have forced a highly summary treatment: a fact rendered less regrettable by the supplementary publication of the thirteen supporting monographs.

It goes without saying that in a field so broad and unsettled as that of social science no committee could so choose and order a set of chapter headings, no group of scholars could so organize and present their materials, as to command the unqualified approval of all their colleagues. The scope of the report on social trends is, however, so widely inclusive — in spite of the limitations just mentioned — that criticism from this point of view would seem superfluous. It should be specially noted that a definite and highly successful attempt has been made to integrate the report as a whole. Each chapter was read by each collaborator, as well as by members of the general editorial staff, before it reached its final form, and the result has been numberless cross-references and a high and unusual degree of coördination. Thus while the authors of the chapters on the arts in social life, childhood and youth, the growth of governmental functions, and taxation and public finance, among others, necessarily treat of education from their special points of view their discussion is related to the chapter devoted specifically to that topic in a much more than merely perfunctory way.

To be carefully distinguished from the integration and coördination of topics to which reference has just been made, is the effort at interpretative synthesization according to some basic principle. It will be recalled that the Committee on Recent Economic Changes had emphasized the dangers of regularly occurring economic disequilibria, and the importance of the maintenance of economic balance. Fundamentally the same concept is employed by the Committee on Recent Social Trends, tho it is broadened to include all sorts of social forces, and is given a special form for which Professor Ogburn

4. Professor Ogburn has discussed some of the methodological difficulties, with which the Committee was faced in the *Journal of Political Economy*, XLI, 210-221 (1933).

seems to be chiefly responsible.⁵ "It is the express purpose of this review of findings," the Committee declares, "to unite such problems as those of economics, government, religion, education, in a comprehensive study of social movements and tendencies, to direct attention to the importance of balance among the factors of change. A nation advances not only by dynamic power, but by and through the maintenance of some degree of equilibrium among the moving forces. . . . Unequal rates of change in economic life, in government, in education, in science and religion, make zones of danger and points of tension."⁶ The view is then elaborated that the different parts of our culture are interrelated; that, consequently, changes in one part require compensating changes in others, that changes tend to occur first and most rapidly in the field of science and invention and next in the economic organization; that needed adjustments in institutions such as the family, the government, the schools and the churches, and ultimately in social philosophies and codes of behavior lag behind; that "dangerous tensions and torsions" often result; and that, finally, "effective coördination of the factors of our evolving society mean [sic], where possible and desirable, slowing up the changes which occur too rapidly and speeding up the changes which lag."⁷ Comments on the implications of this "unifying principle" will be reserved until later.

In its "effort to interrelate the disjoined factors and elements in the social life of America, in the attempt to view the situation as a whole,"⁸ the Committee distinguishes three fundamental influences: the physical, biological, and social heritages.⁹ The chapters devoted to the first two of these — those treating of natural wealth, of population, and of the vitality of the American people — are among the most satisfactory in the report. This is largely due to the fact that the available source material is rich, and that it naturally pre-

5. See his *Social Change with Respect to Culture and Original Nature*. New York (Huebsch) 1922.

6. *Trends*, I, xiii.

7. I, xiii-xv; lxx-lxxi.

8. I, xii-xiii.

9. I, xv.

sents itself in quantitative form. The units in terms of which the production of minerals, agricultural products, and power is expressed are exact; output and horsepower per worker and price per unit of product are also definite as well as clearly useful concepts. The numbers of persons, according to various classifications, can be stated exactly; birth rates and death rates can be rigorously calculated. As a result certain quite definite conclusions as to recent trends can be reached, and the basis for a certain amount of prognostication provided. It is peculiarly significant, however, that in these very fields the authorities seem particularly aware of the risks of prophecy. Before venturing a statement on the outlook for the future as regards mineral and power resources, Tryon and Schoenfeld remind the reader of the "uncertainties of social action," the "chance character of mineral discovery," and the "dynamic possibilities of invention"; and, after a bow to the business forecasters, relate that as recently as 1920 "the U. S. Geological Survey sponsored a very careful estimate of the country's oil reserves which eleven years' experience has already proved much too low."¹ Thompson and Whelpton, after elaborate calculations, cautiously prophesy that the population of the United States will be between 145,000,000 and 190,000,000 in 1980, inclining to favor the lower figure, and using approximately 157,000,000 on their chart.² The latter estimate, it may be noted, is at least 20,000,000 below that made by the same authors so recently as 1930.³ It may also be remarked that these authorities specifically point out the possibility that some unforeseeable influence may suddenly and importantly change the conditions of population growth.⁴ Yet it should be observed that in chapter after chapter of the Report prophecies with regard to this or that social trend necessarily rest, in part, on assumptions regarding the future of population.

Considering the importance assigned by the Committee to

1. I, 88-89.

2. I, 48-49, 2.

3. Thompson, W. S.: *Population Problems*. New York and London (McGraw-Hill Book Co., Inc.) 1930.

4. *Trends*, I, 46, n. 36.

invention as a force for social change, it is not surprising to find Professor Ogburn himself treating this subject in an early chapter. A rather extended survey of recent mechanical inventions of social influence is accompanied by an elaborate consideration of the various social effects of the radio.⁵ An effort at quantitative treatment of the subject then leads to a study of the number of patents, inventions and scientific discoveries in recent years in the United States and other countries.⁶ The significance of these figures, however, is not entirely clear. In the first place, inventions are admittedly of vastly different qualitative importance: the social impact of those basic inventions which have patently revolutionized transportation, communication, and productive technique would be readily admitted by all, but it does not appear that Professor Ogburn has demonstrated that the occurrence of such inventions is directly related to the total number of patents. That "the accumulation of the influences of the smaller inventions is a significant part of the process," and that "the cumulative influence of these many thousands of small inventions and improvements must give impetus to the flow of the stream of culture" is no doubt true;⁷ but the quantity of significance and impetus is not discoverable. Furthermore, it would appear that the rate of increase in the number of patents has been declining: the number of patents per capita in 1930, for instance, was less than in 1920.⁸ Even if one were prepared to admit the validity of curve-fitting as a means of prognosticating the growth of invention, one would have difficulty in following Professor Ogburn when he brushes these recent developments aside in declaring that "over a long period of time the curve of the growth of patents has been upward."⁹

5. I, 130-58.

6. I, 125-27.

7. I, 159-60.

8. 1.87 per 1,000 in 1920; 1.78 per 1,000 in 1930.

9. I, 125. For a further discussion of this matter, see Prof. P. A. Sorokin's review of *Recent Social Trends*, and Ogburn's rejoinder in *J. P. E.*, XLI, 194-221 (1933), and Sorokin's further comment in *J. P. E.* XLI, 400-404 (1933). Professor Sorokin has anticipated several of my other criticisms.

When other chapters dealing with the "social heritage" are critically examined, the difficulties of the Committee's problem become increasingly apparent. Take, for example, the next in order, the study in Chapter IV of the agencies of communication by Willey and Rice. Here are set forth exact figures regarding recent changes in the employment of railroads, motor vehicles, electric railways, waterways, and airways, in touring and travel, in the utilization of postal, telegraph, telephone and other facilities for communication, in the circulation of newspapers, the exhibition of motion pictures, and the broadcasting of radio programs. These figures are frequently interesting — all are important, no doubt, for certain special purposes — and they "prove" that "changes within the transportation system have engendered a mobility of population that is unprecedented," that "the agencies of point to point communication have similarly extended the radius of man's contacts," and that "agencies of mass impression subject the individual to stimuli of sight and sound that may serve to make him think and act, in some measure, like millions of his fellows."¹ But it does not appear that it is possible to predict when the current downward trend of railway passenger-miles per capita or the equally current upward trend of daily papers professing to be "independent" politically will cease.² Nor is it suggested that the rate at which the "tempo of life" is being speeded can be determined, much less shown to exhibit some definite desirable or undesirable relation to other rates of social change.

It is obviously impossible, if any limits whatever are to be set to this notice, to comment on each of the many chapters. To an economist, those by Gay and Wolman on trends in economic organization, by Hurlin and Givens on shifting occupational patterns, and by Wolman and Peck on labor groups in the social structure seem admirable. They are exhaustive within their limits of space, well-organized, and excellently supported by tables and charts. The conclusions reached are cautious and sound. McKenzie's discussion of

1. I, 216. There are a number of other analogous conclusions.

2. I, 170, 204.

the rise of metropolitan communities seems notably fresh and significant. Hart's chapter on changing social attitudes and interests is less impressive, partly, perhaps, because one is oppressed by the thought of the enormous labor involved in counting entries in the Readers' Digest and "indicators" of approval and disapproval of various topics and attitudes in hundreds of magazine articles — labor that results largely in confirming what everyone would have supposed. The group of chapters on government, with which the second volume closes, are excellent.

But so are they all — in many ways — excellent. As one reads on the impression deepens. Here *are* the facts: meticulously gathered, admirably organized, lucidly set forth. The report is indisputably encyclopedic. To be sure, much is not new — the conclusions particularly wear a familiar air. "More women . . . are now working for pay outside of the home." "The wave of approval for sex freedom appears to have been closely associated with the decline of religious sanctions for sex conduct." "The institutional functions of the family as for example its economic functions [have declined]." "Technological progress is rendering useless much of the traditional skill of the worker." "The two most important trends in modern recreation in this country have been the widespread development of commercialized facilities for the enjoyment of passive amusements, and the rapid growth of private and public facilities for participation in a large variety of games and sports and other active recreational facilities." "The people of the United States have not been concerned in the last quarter-century with thinking about any fundamental reorganization of their institutions."³ But the presence of so much that is not new is after all inevitable, considering the task set for the Committee. To gather together, to sift and arrange, all the available factual material on recent social trends must necessarily have required the re-handling and re-presentation of much that was old. On the other hand it should be observed that figures have invariably been brought up to date, that relatively new techniques have

3. I, 268, 441, 661; II, 853, 954, 1426.

occasionally been employed,⁴ and that parts of many chapters strike the reader as being fresh in one way or another. This was to be expected, considering the calibre of the authors, who would hardly have been willing to serve as mere compilers.

One of the most striking characteristics of the various chapters is their quite calm discussion of social problems which are presented by the Committee itself, in its review of findings, as causes for serious alarm. Concern is, of course, manifested by the various collaborators over industrial and financial instability, unemployment and other labor problems, agricultural depression, the plight of the consumer, problems of medical care, organized and other forms of crime.⁵ Moreover there is a general tendency to suggest the desirability of employing the agency of government to deal with these difficulties. Further public control over business and finance, experiments with economic and social planning, further movement in the direction of social insurance, extension of public medical services, government activity in the interest of the consumer — all these are put forward as possibilities, tho hardly as essential means of salvation. The group of writers on government, however, point out that "at the end as at the beginning of the period [1915-29] little popular disagreement could be found with the assertion that the role of government is 'to provide the circumstances under which private initiative can operate most successfully'";⁶ that, moreover, public funds are likely now to be depleted, as a consequence of such a decline of taxes as marked the depression and period of deflation which began in 1873.⁷ Nevertheless these authorities also recognize that current hard times may put greater pressure on government as a giver of relief of various sorts, and that the courts have recently exhibited an increasingly liberal attitude towards experimental social legislation.⁸ Finally, in a concluding

4. See Hart's chapter (viii) on changing social attitudes and interests; and Kolb and Brunner's study of rural-urban patterns in terms of county tiers (I, 539-48).

5. Chs. v; vi; xvi; x; xvii; xxi-xxiv; xxvii.

6. II, 1329. See also II, 1426, 1533.

7. II, 1389.

8. Vol. II, 1330, 1427, 1446-48.

chapter on government and society, Professor Merriam devotes special attention to social and economic influences on the political order, to the acceptance of the idea of planning — especially in the cities, to the struggle between business and government for the upper hand, and to the paradoxical popular coupling of a hostile attitude towards governmental expansion in general theory with a growing demand for governmental interference in particular fact.⁹

As a matter of fact, the manner of expression of Professor Merriam, a member of the Committee, may be said to stand halfway between that of the collaborators in general and that of the Committee as such. The latter begins its review of findings in this tone: "Even a casual glance at some of these points of tension in our national life reveals a wide range of puzzling questions. Imperialism, peace or war, international relations, urbanism, trusts and mergers, crime and its prevention, taxation, social insurance, the plight of agriculture, foreign and domestic markets, governmental regulation of industry, shifting moral standards, new leadership in business and government, the status of womankind, labor, child training, mental hygiene, the future of democracy and capitalism, the reorganization of our governmental units, the use of leisure time, public and private medicine, better homes and standards of living — all of these and many others, for these are only samples taken from a long series of grave questions, demand attention if we are not to drift into zones of danger."¹⁰ And the Committee concludes its review with a series of passages which seem to commit it to a belief in the desirability, in government, of "a broader social program and a sharper edged purpose to diffuse more promptly and widely the gains of our civilization, with control over social and economic forces better adapted to the special social tensions of the time, with less lag between social change and governmental adaptation and with more pre-vision and contriving spirit."¹¹ To these ends, they suggest, if drift and dark conse-

9. Ch. xxix, *passim*.

1. I, xi-xii.

2. I, lxix. See also the following pages.

quences are to be avoided, social fact-finding and interpretation by individuals, by organized groups of private investigators (such, presumably, as themselves), and by governmental agencies, both those already existing and those which, like a National Advisory Council, might be specially set up for the purpose. As was earlier pointed out, the Committee considers such steps as these to be crucially needed.³

It now remains to pick up certain threads of the foregoing discussion and, at the same time, to consider certain fundamental questions raised by the reading of the report. Do these books tell us, as their publisher implies,⁴ "what kind of a civilization we have built"? Do they tell us "what kind of a civilization we are creating for the future"; or how to create the kind of a civilization we want, presuming we know what that is? What accounts for the alarm, manifested by the Committee on Recent Social Trends, as contrasted with calmer views of the Committee on Recent Economic Changes? Must the layman conclude that the conclusions of so distinguished a group of social scientists, based on so massive a piece of scholarly investigation, are indisputably sound? And, finally, does it appear that the whole expensive and time-consuming project was worth the carrying out?

It would obviously be unfair to hold the Committee responsible for all the claims put out for its report by its publishers; and I do not for a moment suppose that its members would ever assert that *Recent Social Trends* represents a complete picture of our civilization — leaving the question of who "built" it aside for the moment. As a matter of fact the Committee specifically points out the limitations to its work imposed by various unavoidable conditions. In the first place the quantity of data available for treatment varied greatly from field to field: distressingly little in the case of the arts; embarrassingly much in the case of population problems.⁵ Certain whole topics, as has already been noted — e.g., "the fateful issue of war and peace," "foreign developments,"

3. Loc. cit. See above, p. 155

4. In an announcement of publication.

5. I, xciii.

"the growth of scientific knowledge . . ., of social science and social research"—were excluded for one reason or another.⁶ Moreover, the Committee recognized that its insistence that only scientifically demonstrable truths be treated automatically prevented consideration of "important elements in human life not easily stated in terms of efficiency, mechanization, institutions, rates of change or adaptations to change."⁷ It seems to me that, as a practical matter, its decision to omit discussion of such elements was wise; but the consequence was still further to restrict the results which it was able to get. We have then a one-reel motion picture taken in a light not always as bright as might be desired: however good otherwise, it is inevitably flat and in places dim—and the aroma of human juices does not hang heavily about it.

The synthesizing principle which the report relies on has already been referred to: it is a somewhat elaborate theory of social change.⁸ It belongs to a family of concepts which includes the theories of social selection and the doctrine of economic balance.⁹ These concepts are beyond question helpful if not too much is claimed for them. Properly interpreted the version employed by the Committee may undoubtedly prove illuminating but it also seems readily to lend itself to abuses. For instance in its emphasis upon "speed," "time," "forward movement," and "lag," the theory gives implications of quantitative exactness, of unidirectional

6. I, xciv.

7. I, lxxv. The dilemma in which the Committee finds itself has been discussed, in the abstract, by Havelock Ellis. "The attempt to apply measurement to civilization is," he concludes, ". . . a failure. That is, indeed, only another way of saying that civilization, the whole manifold web of life, is an art. We may dissect out a vast number of separate threads and measure them. It is quite worth while to do so. But the results of such anatomical investigation admit of the most diverse interpretation, and, at the best, can furnish no adequate criterion of the worth of a complex living civilization." *The Dance of Life*. Boston and New York (Houghton Mifflin) 1923. P. 301.

8. See above, p. 158. For the use of the concept by the Committee see *Trends*, I, xii-xv; lxx-lxxv.

9. Cf., for example, Sumner, W. G. and Keller, A. G. *The Science of Society*. New Haven (Yale University Press) 1927. I, 35-39. Also *Recent Economic Changes*, I, xix-xxii.

change, of definite correlations, and of possibilities for control which seem likely to mislead.¹ At any rate the view seems not to lead the Committee to any notion that the occurrence of disequilibria will result in the more or less automatic generation of balancing forces, but rather to the belief that social invention and social control must consciously be employed to slow up certain changes and speed up those that lag.

It is this emphasis upon conscious social control which leads one to suspect that their publishers did the Committee no severe injustice in referring to the "civilization we have built," "the civilization we are creating." How far are such phrases justified, if interpreted as I imply them to be? One would not wish to discourage the application to our perplexing social problems of all available intelligence, whether individual or "social." Yet it would be hard to demonstrate that, in the past, our civilization has been "built" by "social thinking." Moreover, candor compels the statement that the Committee's own report does not convince one that scientific capacity to predict or control with fair exactness has yet been generally achieved in the social sciences. How about prediction? The caution of certain collaborators, the reliance upon "ifs" and "mays" has already been remarked. Let us note a few phrases from the Committee's own review. "It will probably be decided. . . ." "It is not at all certain . . ." "It may be questioned if . . ." "The possible influence of . . ." "A solvent unemployment fund would do much . . ." And if it is so difficult to tell what *will* happen, how much harder to *cause* that to happen which one wills.

It would be unfair to the Committee to imply, however, that they fail to see the difficulties. Man's conservative and stubborn nature they know.² The staggering difficulties of economic planning they describe — and conclude that "it is more in line with past experience to anticipate a long series of cumulative improvements which will gradually transform

1. For example see Professor Sorokin's interpretation and Professor Obgurn's comment. J. P. E., XLI, 202-206, 217-220, 403.

2. I, xlviii.

economic organization into something different, than to anticipate a sudden revolution in our institutions."³ Perhaps a war psychology can be developed, they suggest: a universal consecration not in the cause of destruction, but of construction in the interest of social justice.⁴ To be sure, "the Committee does not wish to exaggerate the role of intelligence in social direction," nor "to overstate the aspect either of integration or concentration in control, or of governmentalism." Yet the final conclusion comes at last: "Unless there can be a more impressive integration of social skills and fusing of social purposes than is revealed by recent trends, there can be no assurance that . . . violent revolution, dark periods of serious repression of libertarian and democratic forms, the proscription and loss of many useful elements in the present productive system, can be averted."⁵

Why, to return to an earlier question, this note of alarm, so different from that which marked the report on *Recent Economic Changes*? Even when the Committee's own list of "tensions" is examined,⁶ it does not appear that any startling new developments have occurred since 1929, except in consequence of the economic depression. The Committee on *Recent Economic Changes*, writing in a period of prosperity against an historical background, warned of the probability of ultimate recession; writing now, they might well have sounded a note of hope of returning prosperity. Yet it is only fair to admit the extraordinary severity of the present depression and the consequent inevitability that it should color the thinking of the Committee on *Recent Social Trends*. The latter, moreover, seems deliberately to have focussed its attention on change and recent change, — which no doubt also had its effect. Even had it consciously employed an historical setting, it would, in few cases of the phenomena which it was set to study, have been able to discern regular fluctuations such as mark the business cycle.

3. I, xxxi.

4. I, xxxi-xxxii.

5. I, lxiv.

6. See above, p. 158

But the chief explanation of the new note, I am inclined to think, lies in the dominating personalities of the newer committee. Here was a group of large-scale researchers, unhampered by the necessity of tempering their views to an over-committee of "practical" men. Here, moreover, was a group which, to judge only from its willingness and ability to undertake and carry through so vast an enterprise as its present report, was made up of men of active temperament. It has been suggested that social scientists, in their attitudes towards social problems, tend to divide, as do physicians, into the "wait-and-see" and the "let's-do-something" classes. To the latter class I judge the members of the Committee mainly to belong. And I conclude that what is most significant in their conclusions is not, after all, the negative note of alarm, but rather the positive demand for action. Temperamentally, I believe, these men loathe what they call "drift," and yearn for action; especially, perhaps, since the action envisaged would be more coöperative research — only this time, possibly, with power.

But other social scientists, partly because of varying temperament, partly for other reasons, will not go along; at least, not entirely. To the Committee's great body of collected facts they will seldom, I think, find it possible to take exception — at least so far as their being *so* is concerned. But when it comes to judgment of the material many will choose to sound, even in the midst of the "New Deal," a somewhat different note, the rather quieter note of Recent Economic Changes. The layman, poor fellow, cannot feel quite certain, after all, that in Recent Social Trends American social science *has* spoken!

One task remains: the appraisal of the value of the enterprise as a whole. In any exact sense of the balancing of marginal utilities the task would, of course, be impossible even were I aware of the total cost of the project. Within the limits set for them by circumstances — including the baffling complexities of social data themselves — the collaborators have done an amazingly effective job. No doubt what is really new could have been made available to other scholars

at much less expense; but these two fat volumes should prove of continual value to all sorts of persons who would never have found a fraction of the source material for themselves. Nor will scholars fail to find them useful in many ways. To be sure, some of the hopes of the Committee do not seem to me to have come off; some of the facts so painstakingly gathered I consider of dubious significance; and I should myself interpret the basic materials somewhat differently. But these criticisms would be directed at only a small part of the work, quantitatively viewed. The performance as a whole certainly demonstrates the possibilities of mass-scholarship more positively than anything which to my knowledge has yet appeared.

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TWO NOTABLE CONTRIBUTIONS TO ECONOMIC HISTORY¹

The recent studies of Dr. L. C. Gray and Prof. J. U. Nef differ not only in that they are concerned with widely different aspects of economic history, but in striking contrasts of interest and method. They are examples of the work of two distinct schools of historical writing. Dr. Gray represents the older school which conceives the task of the historian to be the critical establishment of a body of facts. Professor Nef represents the newer school which recognizes frankly that history is a system of values, which must be established critically and freed from the more immediate elements of bias; any specific work thus becomes an application of some broad system of valuation. We need not concern ourselves here with the relative merits of these points of view, but it is of great significance to note the influence of the two concepts upon the treatment of the subjects of these important treatises. The ideal of pure objectivity leads Dr. Gray to a relatively narrow treatment of his subject. He is primarily concerned with the orderly presentation of the contemporary material, and there is a manifest disposition to restrict discussion to a survey of contemporary opinion. It is true that on some primary issues a broader judgment is given, but the establishment of the general conclusion is in no sense made a primary task. Professor Nef follows an absolutely different method. The coal industry in the period 1550 to 1700 is interesting to him largely because the study of this period reveals the need of a comprehensive revaluation of accepted judgments both in regard to the development of the industry itself after 1700 and in regard to the interpretation of the

1. Gray, Lewis Cecil. *History of Agriculture in the Southern United States to 1860*. Washington: Carnegie Institution of Washington, 1933. pp. xix, 1086. Two volumes.

Nef, J. U., *The Rise of the British Coal Industry*. London: George Routledge & Sons Ltd., 1932. pp. I, xiv, 448; II, vii, 490. 42 sh.net. London School of Economics and Political Science, *Studies in Economic and Social History*, vol. VI.

entire movement so infelicitously characterized as the Industrial Revolution. While a large amount of new factual material has been accumulated by him, the emphasis throughout is on the valuation of the facts. The coal industry is not only placed definitely in its immediate setting in the specific period, but careful attention is given to the broad relations of this period to the earlier and later periods. Furthermore, all possible contacts and comparisons with adjacent countries have been worked out, so that we have not merely a body of facts, but a critical establishment of the relations of these facts to the economic development of England and Continental Europe for four or five centuries.

Dr. Gray has been assisted by the Carnegie Institution and his work presents some features in common with the other volumes of Carnegie publications on the economic history of the United States, especially in the tendency toward a rather extreme form of historical objectivity. His study of southern agriculture is definitely one of the best of the series, and it is largely for this reason that it is interesting to examine it from the standpoint of historical method. It represents a very high standard of achievement and hence it may be fairly judged as an example of the utmost that can be accomplished by the method followed.

The studies of the particular crops and of cultural methods leave little to be desired. The discussion of soil exhaustion does not rise above the level of the empiricism characteristic of the period, and the comments on the development of methods of cultivation will not be very significant to a reader unfamiliar with the best literature on scientific agriculture. The rise of the plantation system is traced with conspicuous skill, the census material being more fully utilized than in any previous study. We have for the first time a picture in terms of the entire area, and the outlines are seen to diverge in many ways from the older views based on particular cases which invariably exaggerated the relative importance of the large plantation units. The social problems created by the negroes are more adequately discussed than in other studies of the period. New emphasis is thus placed upon the prob-

lems of the races as distinct from the problems created by servile status.

However objective the treatment, however great the wish to be free from bias, it is not possible to evade the two great questions presented by the economic history of the South: was slavery a source of gains that made a system based on slave labor more profitable than a system based on free labor? What were the causes of the decline of the South in relative economic importance in the period 1840-60? The recognition that these questions need to be answered implies a certain dissatisfaction with pure factual objectivity. The matter of the comparative advantages of free and slave labor is hardly a pure, objective fact. Doubtless the tacit recognition of the irrelevancy of these questions from the point of view of pure objectivity stands in the way of their thoro examination. The incomplete discussion of the relative advantages of slave labor is especially significant. The general chapter devoted to the problem begins with an interesting and adequate survey of the earlier literature, but the direct analysis leaves something to be desired. The two problems of the selling price of slaves and the unit cost of slave labor are not adequately distinguished. In the analysis of the selling price Dr. Gray presents a new view. His discussion of the capitalization process is based on the rather dangerous analogy between the royalties of mines and the series of labor services of the slave. Much is made of the fact that capitalization of a diminishing series of labor incomes from a particular slave does not require the recognition of a maintenance charge. Dr. Gray seems to make no distinction between two related but distinct modes of accounting, which are aimed rather at the unit cost of slave labor than the price of the individual slave. By the more explicit method it would be necessary to determine the cost of the annual product of the various slaves, distinguishing those purchased from those bred on the plantation. The latter group must needs have been the more important as early as the mid-eighteenth century, if we may draw inferences from the proportions of slaves imported to the total population. In respect of both

groups the computation is complicated by the necessity of including the average expectation of life. It must be a matter of indifference whether the labor increments are treated as a terminable series, without provision for maintenance, or as perpetual series with maintenance; tho the use of the maintenance method would simplify the computation by making it possible to generalize the accounting. If the labor income is to be regarded as terminable, a separate computation would have to be made for each individual slave.

It is perhaps important to note that a distinction must needs be drawn between computed costs and actual costs. The computation, even if accurate, merely indicates the cost incurred when the slaves actually achieve the average expectation of life. If the number of slaves were small and the death rate of the group for a number of years were above the average, the costs would be correspondingly increased. The capital loss would also mean an increase in labor costs. Inasmuch as the simplest capitalization processes were the only conscious reckoning of the period, insurance problems were very inadequately recognized; and, as costs of breeding slaves were very imperfectly known, it is fairly evident that the average planter possessed no real knowledge of his labor costs, whether computed or actual.

Dr. Gray assumes nevertheless that slavery was profitable. Yet he seems to confuse the exploitation of the slave with the general profits of agriculture in the South. Even if slavery offered *no special* profit there is no reason to suppose that southern agriculture would fail to yield some net income from crops and certainly some long run gains from the appreciation of land values. On this point, the slender material available on the hire of slaves is of great significance. Dr. Gray uses this material primarily to show that negro labor was no less useful than white labor. He leaves the general impression that with due allowance for board and clothes the price of hired slaves was about the same as the price of free white labor. It would be interesting to see some comparison between the purchase price of slaves and these rates of hire. Unless the market price was lower than a capitalization of the

rate of hire with actuarial allowances, it would seem that the purchaser of a slave could not assume that the product of their labor would exceed their cost.

In the discussion of the slave trade Dr. Gray suggests that the trader probably shared with the planter in the gains from the exploitation of slaves. He does not, however, recognize the full extent of this participation in the gain. In the eighteenth century, particularly in the West Indies, an increase in the demand for the products of slave labor resulted in so large an increase in the supply of slaves that the price of slaves was maintained at a level that afforded little more than a reasonable margin of profit to the trader. The culture of tobacco and sugar hence expanded so rapidly that their prices remained at unremunerative levels for long periods of time. For the cultural areas in their entirety it is difficult to believe that slave labor was a source of actual net gain to tobacco or sugar planters. In the nineteenth century, the rise of the cotton culture and the prohibition of the external slave trade introduced new conditions. The productivity of slave labor varied widely in different regions. The internal slave trade, as Dr. Gray shows in an excellent chapter, was not sufficiently extensive adequately to adjust the mass of the slave population to the requirements of the different regions. Accordingly, losses must have been incurred in the less productive regions because there were too many slaves; whereas, in more fertile regions prices of slaves would be bid up so high under speculative pressure that the anticipated profit would be largely absorbed by the trader or by the seller. Without more analysis than is presented by Dr. Gray, it is difficult to believe that the individual planter derived a genuine profit from the servile status of his labor force.

On the issue of the "backwardness" of the South and the slow progress towards industrialization, Dr. Gray holds that "slavery retarded the development of the compensating conditions — immigration and industrial diversification. . . . Hence we have the near-paradox of an economic institution competitively effective under certain conditions, but essentially regressive in its influence on the socio-economic evolu-

tion of the section where it prevailed." (p. 942.) This interesting thesis fails to recognize sufficiently the broad features of the fast-changing economic geography of the United States in the early nineteenth century. The development of the coast and the Mississippi Valley altered the relations of the various regions to each other and modified profoundly the economic activities of the different regions. The relative importance of the South in the late eighteenth and early nineteenth centuries was certainly overestimated by contemporaries. The large contribution to the export trade was given too much weight by contemporary opinion, the actual per capita production of the various regions being so ill known and understood that a notion of the economic supremacy of the South found wider acceptance than was warranted by the facts. With these exaggerated ideas as a background, the changes of the period 1815-60 seemed well-nigh incomprehensible. No feature of the period, however, requires any explanation that does not follow naturally from an application of the general principles of the localization of industry and of economic geography. In so far as slavery was a factor in the new position of the South, it was certainly a secondary factor; and it might be more accurate still to say that the presence of the negro population was more significant in this respect than their status. The abolition of slavery did not eliminate this aspect of the problem, and as regards the social problem it must be recognized that the free negroes presented some problems that did not exist under slavery.

The history of southern agriculture is peculiarly unsuited to objective treatment. The basic problems involve comparisons with conditions in the West Indies and in the North, and the social problems prior to emancipation are illuminated in many ways by the social problems following emancipation. The treatment followed here leaves one with an important body of material that is not adequately located in its historical setting. The outcome, too, has less value to the general reader, and contributes less to the advancement of historical appreciation than a study pursued on broader lines.

There has been a disposition in some quarters to assume that interest in broad interpretation would inevitably exert an adverse influence on energy in the accumulation and criticism of new material. The study of Professor Nef affords striking evidence of the compatibility of minute critical study of new material with broad interests in the larger problems of historical interpretation. His study of the coal trade involved extensive use of manuscript material and pamphlet literature, much of it never utilized before; and his intensive research has been extended in many instances to the development of coal mining on the continent, and to the use of coal in the Middle Ages. But all purely critical apparatus has been relegated to appendices, and the quantitative results are tabulated or embodied in excellent maps. There is thus nothing in the text to distract attention from the primary features in the development and organization of the industry. The amount of careful critical work embodied in the maps and appendices will be appreciated only by those familiar with the problems of manuscript work in these earlier periods.

Since Jevons' study of the coal trade it has commonly been supposed that the large growth of the trade began after the invention of Watt's steam engine. The period of growth was supposed to coincide with the industrial development of the nineteenth century. Professor Nef now shows that while the expansion of the trade in the eighteenth century was not especially rapid, there was a notable period of growth beginning about 1550. The most rapid advance was halted by the disorders of the Civil War, but growth continued, tho at slower rates, until the close of the eighteenth century. The early period was characterized by a wide substitution of coal and coke for wood and charcoal for industrial uses as well as domestic purposes. The new fuel stimulated industry, ship-building, and shipping, and played a vital part in the economic development of England in the sixteenth and seventeenth centuries.

An important feature of the study is the application of quantitative methods, so that we are able to make some comparisons between the rates of expansion in the different

periods. It has been possible to secure data for the average annual product on of coal in Great Britain for the decades 1551-60, 1681-90; while figures for 1781-90, and 1901-10 are included for comparison. The following table shows the general features of the development. Percentages of increase

PRODUCTION OF COAL IN GREAT BRITAIN, 1551-1910

Period	Average per Year	Average Annual Rate of Increase for the Preceding Period
	<i>Tons</i>	<i>Per Cent</i>
1551-60	210,000	
1681-90	2,982,000	2.00+
1781-90	10,295,000	1.25
1901-10	241,910,000	2.75-

have been added to facilitate comparison of the periods. Additional details available for the Newcastle trade (which accounts for nearly half the total) indicate an average annual increase of 4.5 per cent in the period 1563 to 1591, and an average annual increase of 3.75% during the period 1563 to 1633; and this chronology of development was certainly characteristic of many coal fields. We are justified in saying that the more active periods of expansion in the late sixteenth and early nineteenth centuries were roughly comparable.

Altho mining and the metal trades do not in the period 1550-1640 rise to a measure of importance equivalent to the textile and clothing trades, the new fuel did exert a profound influence on the development of Great Britain. The active development of coal and iron made Great Britain a focus of industrial activity, whereas in the Middle Ages it was merely a frontier province of Europe. Sombart and other students of the rise of capitalism are mistaken in supposing that the changes of the sixteenth and seventeenth centuries were confined to commerce or to the institutional conditions. These centuries must be treated as the effective beginning of the developments which have been associated with the period 1760-1860. The so-called "Industrial Revolution," even in its more extended meaning, must be regarded as the culmination of a development already in progress for two

centuries, which in its genesis as well as in its fullest development was more closely associated with coal and iron than with cotton. The date line 1750 will become, for economic history, a secondary rather than a primary date line. The revision in periodization will also add considerably to the difficulties of maintaining the concept of historical process by "revolution" and give new emphasis to the development of evolutionary concepts. In this regard, Professor Nef's study of the coal industry is the most important contribution that has been made to modern economic history for many years.

These aspects of the study, however, do not exhaust its content. They account only for parts one and two: the expansion of the coal industry, coal and industrialism. There are three other parts: coal and the ownership of natural resources, coal and capitalism, and coal and public policy. It is impossible in the space at command to give an adequate idea of the scope of these chapters. The development of mining law presented special features, because private owners succeeded in preventing the inclusion of coal in the regalian rights of the crown. After the Reformation, lay holders succeeded in procuring extensive holdings of mineral lands formerly in the hands of ecclesiastical corporations. The system of royalties grew up during the sixteenth century. Under the general heading *Coal and Capitalism*, we have a full analysis of finance, management, and labor relations. The special features of status of coal miners are fully explained, with rich documentation, and the tendencies toward monopoly in the Newcastle trade are discussed in detail again, with a large amount of new material. Some of the problems of monopoly appear again in Part V in connection with royal regulations and privileges. On the whole, royal policy, even the pressure of various types made it impossible entirely to neglect the interest of the London consumers, was dominated by fiscal necessity rather than by considerations of public welfare. Various taxes on the industry were deeply involved in the constitutional struggle of the seventeenth century, and the trade between Newcastle and London proved to be a strategic point of attack during the Civil War and in the Dutch wars

of the Restoration. Despite recognition of the broader historical problems, none of the immediate aspects of the subject have been neglected. The study accomplishes all that the most narrowly conceived monograph might be expected to accomplish, and in addition puts all this material in its general setting.

It has long been the conviction of the present writer that this is the way economic history should be written, for it is the only technique by which we shall be able to deal effectively with the forbidding masses of material that must be used if we are to have an adequate body of literature in economic history. Whatever may be the merit of the large-scale history of a single period in political or constitutional history, there are grounds for believing that any well-rounded achievement of this character is impossible in the field of economic history. A relatively long period must be treated if the results are to be of real significance, and a larger geographic area must be covered than is adequate for the political or constitutional historian. True, any large work is of value; the real issue is on the most effective use of time and effort. Does one contribute as much, and make as permanent a contribution of historical literature, in the form of a comprehensive period history, as in the form of carefully executed studies of special topics involving approximately the same effort? The case for the special treatise has elements of strength that have been very imperfectly appreciated. One may presume that Professor Nef's study of the Coal Industry will be accepted as definitive long after Sombart's *Moderne Kapitalismus* has been relegated to the group of books that are significant not for the history of men and events, but only for the history of thought.

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THE LONDON PASSENGER TRANSPORT ACT OF 1933: A NEW SOCIALIZATION

It is still an unsettled question in the sphere of modern industrial organization whether unification under public control is preferable to unification under private control; but the more intelligent protagonists of these two policies have recently made certain modifications of their views which, for all practical purposes, seem to have lessened the gulf between them. Thus many believers in private enterprise no longer maintain that all public enterprises must inevitably be costly and dismal failures; while many of the advocates of socialization are freely admitting that close and successful public operation and control of any industry is unlikely to be achieved either by "civil service" methods, or by subcommittees of democratically elected local authorities. The gradual spread of socialization seems to have strengthened the opinion that the day-to-day control of public industrial concerns should be in the hands of special bodies or boards of managers chosen *ad hoc* for their known fitness to do the particular work required. In a recent report (1932) on the public control and regulation of industry and trade the General Council of the Trades Union Congress put forward the view that in any socialized industry the board of management should consist of persons, drawn from any class in the community, and appointed by the Government, not as representatives of particular interests, but solely on the ground of their fitness for the positions to be filled. The authors of the report did not wish to rule out the representation of various interests, including, of course, organized labor, but suggested that this could best be done by setting up in each case an advisory or consultative committee, to work in close coöperation with the Board of Management. All British trade unionists do not accept these proposals. Many still hold to their preference for *representative* boards of management, on the ground that the proposed advisory committees seem likely to be ineffective bodies, and that, with regard to

the boards of management, it is unwise to place wide and almost absolute power over the many in the hands of a non-representative few. But the specially appointed board of management is gradually finding favor; and this not only in Labour Party and trade union circles, but in Conservative circles also. As Mr. G. D. H. Cole has pointed out,¹ it was a conservative government which recently passed legislation nationalizing the bulk transmission and wholesaling of electrical power and establishing an extensive system of control over both the generation of electricity and its retail distribution, and "we have the startling paradox that the most socialistic piece of legislation passed since the war has been enacted, with very little opposition in any quarter, by a Conservative Government." The Central Electricity Board, which is placed, with monopoly powers, in a key position between the power stations on the one hand, and the distributors or retailers (whether private or municipal) on the other, is a body of experts appointed by the Minister (for periods of five or ten years, as he may decide). The Board's capital is raised by borrowing at fixed rates of interest, and the stockholders have no control over the conduct of the industry. The British Broadcasting Corporation is another example of a socialized service controlled by a body of directors appointed by the Government and entrusted with wide powers and a "free hand."

The same principles are followed in the most recent extension of socialization, by which the bulk of the passenger transport services of greater London has been placed under the control of a specially appointed public body, the London Passenger Transport Board. In this case, as in the others, there is a small central controlling body, or board, of experts enjoying a large measure of autonomy and freedom of action, untrammelled by decisions of stockholders, but subject in the last resort to parliamentary control. The members of these boards are not the elected representatives of various interests, but paid experts chosen primarily because of their special fitness to "run" the particular public services to which they

1. *Economic Tracts for the Times* (1932), 271-2.

are appointed. The members of the Central Electricity Board and the British Broadcasting Corporation are directly appointed by the Government; the members of the London Passenger Transport Board are appointed indirectly, as will be explained below. The appointments are made for limited periods, ranging from three to ten years, and reappointment of retiring members is always a possibility. On the question whether representation of various interests should be conceded by means of advisory or consultative committees, the British legislature seems undecided. The electricity industry, for example, has no such committee; the London passenger transport industry has.

On July 1, 1933, the London Passenger Transport Act, 1933, came into force, and the bulk of the passenger transport services of greater London was combined and placed under the control of a specially appointed public body called the London Passenger Transport Board. The Act in its main outline embodies a scheme originally drawn up by a Labour Minister of Transport (Mr. Herbert Morrison), but was ultimately enacted by a parliament predominantly Conservative. The new combine does not amount to a clear-cut substitution of public for private ownership and control. The ownership of the capital remains partly in the hands of private investors and partly in those of certain local authorities. As to control, the new arrangements mean not only a transfer from private to public enterprise, but also the displacement of various separate local authorities by public control of a very different kind. A huge concentration, with its concomitant promise of better coördination, is established; and there is little doubt it has come none too soon. The newly established London Passenger Transport Board (hereafter spoken of as the Board) now controls the largest passenger transport system in the world. It operates in the London Passenger Transport Area (i.e., within a radius of approximately thirty miles from Charing Cross), and comprises the Underground group or combine (eighteen railway, omnibus and tramway companies), the Metropolitan Railway, and all the other tramway undertakings and "independent"

omnibus companies. The suburban sections of the main-line railways are not taken over, but the services are to be coördinated with those of the Board, and receipts are to be pooled. In addition to the eighteen Underground companies, the Act schedules sixty other companies and the passenger transport undertakings of fourteen local authorities. Between them these undertakings owned 11,430 vehicles (omnibuses, motor-coaches, trolley buses, trams and railway coaches), and during their last year they carried 3,463 million passengers an aggregate distance of 485 million miles. The employees in all grades number nearly 72,000.

Obviously the choice of the members of the Board is a problem of vital importance, and the solution has been sought along somewhat novel lines. The appointing body is not, as it very well might have been, the Minister of Transport in consultation with certain expert advisers, but a body of Appointing Trustees consisting of the Chairman of the London County Council, the Chairman of the London Clearing Banks, the President of the Law Society, the President of the Institute of Chartered Accountants, a representative of the London Traffic Advisory Committee, elected by the committee, and, after the first constitution of the Board, one of its members nominated by it for the purpose. The first four are *ex officio* members. The Appointing Trustees are convened by the Minister of Transport; three members constitute a quorum, and decisions are made by a majority of the votes of the members present, the chairman having a second or casting vote. For the guidance of the Trustees, the Act stipulates that the chairman and other members of the Board "shall be persons who have had wide experience, and have shown capacity, in transport, industrial, commercial or financial matters or in the conduct of public affairs and, in the case of two members, shall be persons who have had not less than six years experience in local government within the London Passenger Transport Area."²

2. The first Board has been appointed as follows:

The members' salaries and allowances for expenses are to be fixed by the Minister of Transport after consultation with the Appointing Trustees and with the consent of the Treasury. The period of office (between three and seven years) is determined in each case by the Trustees, and members are to be eligible for reappointment. No member of the Board may hold or purchase for his own benefit any securities in any passenger transport company or undertaking operating in the London Passenger Transport Area, or any London Transport Stock issued by the Board pursuant to the Act. Failure to comply disqualifies the member; so also does election to the House of Commons, bankruptcy, or absence from the Board's meetings for more than six consecutive months without the consent of the Minister of Transport. Three members form a quorum.

The Act provides an advisory committee by reconstituting the London Transport Advisory Committee which was set up under the London Traffic Act, 1924. The Advisory Committee now consists of forty members (each holding office for three years). Two members represent the Board; the remaining thirty-eight represent various interests, such as labor, the local authorities in and around London, the various police forces in the London Traffic Area, the main-line railways, and the providers and users of other forms of

<i>Name</i>	<i>Qualifications</i>	<i>Term of Present Appointment</i>
Lord Ashfield	The two full-time members. Experienced in the control of London passenger transport.	7 years
Mr. Frank Pick		7 years
Sir John Gilbert (of the London County Council).	Experienced in local government within the Area.	3 years
Sir Edward Holland (of the Surrey County Council)		3 years
Mr. Ashley Cooper (a Director of the Bank of England)	Experienced in finance.	5 years
Sir Henry Maybury (technical expert representing the London Traffic Advisory Committee, of which he is chairman).		3 years
Mr. John Cliff (Secretary of the Transport and General Workers' Union, and formerly a member of the London Transport Advisory Committee). Technical knowledge of transport, also representative of the interests of Labor.		5 years

transport in London (e.g., taxi-cabs and horse-drawn vehicles). Representation is not given to stockholders, nor to consumers *qua* consumers. The duties of the Advisory Committee are:

- "(a) to consider, report to and advise the Minister on any matters relating to traffic within the London Traffic Area which in their opinion ought to be brought to the notice of the Minister.
- (b) to make representations to the Board with respect to any matter connected with the services or facilities provided by the Board in the London Traffic Area.
- (c) to consider, report to and advise the Minister on any other matters which . . . are referred to them by the Minister."

The Advisory Committee has power to make public inquiries into matters within its scope, and, like a court of law, it can take evidence on oath and compel witnesses to attend and produce documents.

In general terms the Board's duties are to provide an adequate and properly coördinated system of passenger transport within its area and from five to ten miles outside according to the needs and circumstances of particular districts; including, possibly, the running of steamboats, motor-boats or other vessels on the River Thames. The Act confers upon the Board a monopoly of the right to pick up *and* set down passengers within the London Passenger Transport Area. Other owners of "stage and express" passenger services may pick up passengers *or* set them down within the Area, but they are prohibited from doing both without the written consent of the Board. It is clearly the intention of the Legislature that the Board shall improve and extend existing services, eliminating and avoiding all "unnecessary and wasteful competitive services," and that it shall charge such fares as will enable it to cover all working expenses, all the interest and sinking fund charges on its capital, and to create an adequate Reserve Fund.

The Board must deposit at the Ministry of Transport complete schedules of the fares in force on July 1, 1933 throughout the whole combine; and any subsequent proposed alterations of fares must be publicly notified by the Board in

conformity with regulations to be made by the Minister of Transport. Furthermore, the

"... Railway Rates Tribunal established under the Railways Act, 1921, ... may from time to time ... by order reduce or increase the fares or any of them charged or chargeable by the Board ... provided that the rates tribunal in making any order may have regard to the establishment and maintenance of a general basis for fares throughout the London Passenger Transport Area."

Fares so revised are to be unalterable for at least one year, unless the Minister of Transport gives special permission on the ground that "there has been a material change in the circumstances."

In order to arrange the coördination of the Board's services with the London suburban passenger services of the four main-line railway companies, a Standing Joint Committee of eight members is set up, four of whom are to be appointed by the Board and one by each of the railway companies. The Joint Committee's duties are to consider and report to the Board measures for coöperation in the services, and it is also charged with the duty of preparing for submission to the Board and the railway companies a scheme for the pooling of the whole of the passenger receipts of the Board and of each of the railway companies on their London suburban lines.

The Act creates five classes of London Transport Stocks, to be issued to the local authorities and the stockholders in the transport companies whose undertakings have been transferred to the Board, in exchange for their holdings in those undertakings on various terms previously agreed upon. In certain specified cases the amount payable in stock and/or cash is to be determined by arbitration or by agreement confirmed by an Arbitration Tribunal set up under the Act. This tribunal consists of three commissioners appointed by the Lord Chancellor (who has also power to fill vacancies), one of whom "shall be a person of legal experience, one ... a person of experience in business, and one ... a person of experience in finance." Its duties are to determine the consideration to be paid by the Board for certain undertakings

scheduled in the Act, and to approve, or alternatively, to "prepare and settle" the scheme for the pooling of passenger receipts between the Board and the main-line railways.

The Board commenced operations with a capital of approximately £111,651,000 distributed between the five classes of stocks as follows:

	Capital £	Total Interest Charge per Annum £
4½% A stock	24,379,372	1,097,072
5% A stock	16,263,950	813,197
4½% T. F. A. stock	12,583,000	566,235
4½% L. A. stock	9,835,036	442,577
5% B stock	24,250,708	1,212,535
C stock	24,339,027	
	<hr/> 111,651,093 <hr/>	

The 4½ per cent and 5 per cent A stocks rank *pari passu*; the remainder rank in the order given above. This, of course, represents an enormous advance in the direction of consolidation and simplification, for the stocks replaced numbered over sixty, each one having its own terms and conditions as to payment of interest and repayment of the principal. The new A stocks are redeemable at par on or after December 31, 1985 and not later than July 1, 2023. The T. F. A. stock carries the British Treasury guarantee as to principal and interest under the Trade Facilities Acts, 1921-6. The L. A. stock, issued to local authorities,³ is redeemable at par on or after December 31, 1975 and within ninety years after the date of issue. It cannot be sold before July 1, 1944 without the Board's consent. The B stock is redeemable at par on or after December 31, 1965 and within

3. Amounts issued to:

London County Council.....	£8,500,000
Middlesex County Council.....	1,085,000
West Ham County Borough.....	281,036
Hertfordshire County Council.....	19,000
	<hr/> £9,835,036

ninety years after the date of issue. The Board has no "equity" or common stocks, the nearest approach being the junior or C stock on which the rate of dividend may vary, according to the residue of profits available in any financial year, between zero and a maximum of six per cent. Normally, no stockholder has any right to participate in the conduct of the Board's affairs; but if the Board makes default in payment of the interest on the A, the L. A. or the B stocks for a period of three months or more, the holders of not less than five per cent of the class of stock upon which the interest is in arrears may apply to the High Court for the appointment of a receiver or a receiver and manager. The holders of at least five per cent of the C stock have a similar right if the Board fails to pay the "standard rate" of $5\frac{1}{2}$ per cent upon that stock for each of three consecutive years after July 1, 1935. This means, of course, that in the not distant future the whole of the Board, as appointed by the Appointing Trustees, might be superseded by a receiver and manager brought in from outside on the initiative of a minority of the junior stockholders; but, unless the Board had grown exceedingly incompetent, it is difficult to see how this would be likely to make the management more efficient.

The Board's fixed assets are valued at £103.4 millions; stocks of stores and materials, £1.5 millions; investments (mainly in gilt-edged securities), £6.5 millions; and cash and accounts receivable, £11 millions. With these assets the Board must earn a net profit of at least £4,131,616 per annum before any dividend can be paid upon the C stocks. Assuming an appropriation of £400,000 annually to the reserve fund, this figure becomes £4,531,616; so that in order to pay a "standard" dividend of $5\frac{1}{2}$ per cent on the C stock the Board must earn over £5,760,000 per annum. Sir William McIntock's estimate of the average annual net revenue, based upon the earnings of the constituent undertakings during the three years ending December 31, 1930 gives a total of £5,798,602.⁴ But during the past two and a half years earnings have declined, and altho important economies

4. *Economist*, January 7, 1933, p. 28.

may be realized by the new combine, these can hardly come about immediately. Any reductions of staff, for instance, involve compensation chargeable against the Board's revenues. Here and there the Board may, of course, substitute more modern and economical forms of transport for certain obsolescent forms, such as tramways; but altho the Act confers powers to "abandon either in whole or in part any tramway forming part of their undertaking," the Board in so doing may find themselves compelled to take over any electric generating plant and equipment plus certain financial liabilities of any local authority which was solely engaged in supplying electric power to the tramway.⁵ This onerous provision places the Board upon the horns of a dilemma; for either they must saddle themselves with electrical plant they do not want and add to their financial liabilities, or they must continue to operate certain tramway services which they regard as obsolete. Similar obligations are imposed upon the Board if they substitute one source of electricity supply for another. It is impossible, therefore, to escape the conclusion that the early years of the Board's existence will probably be difficult ones from the financial point of view, unless a revival of trade comes along, bringing in its train a rise of net traffic revenue.

In addition to the issue of London Transport stock as consideration for transfer of the various undertakings, the Board has power to borrow up to £10 millions plus the unexhausted statutory borrowing powers of the underground railways taken over. All sums so borrowed are to be repaid within ninety years of the issue of the stock. The Board also has power to borrow temporarily, e.g., by the issue of short-term bonds or on bank overdrafts, but the total amount outstanding at any time must not exceed £3 millions.

To deal with disputes regarding rates of wages, hours of duty, or other conditions of service upon which the Board and the trade unions concerned have failed to reach an agreement, Part VI of the Act sets up (a) a Negotiating Com-

5. See the somewhat complicated provisions of section 24 of the Act.

mittee consisting of six representatives appointed by the Board and six representatives of the employees (two appointed by the National Union of Railwaymen, two by the Associated Society of Locomotive Engineers and Firemen, and two by the Railway Clerks' Association); and (b) a Wages Board consisting of an independent chairman nominated by the Minister of Labour, six representatives of the Board appointed by the Board, six representatives of the employees (two appointed by each of the three trade unions mentioned above), one person appointed by the General Council of the Trades Union Congress, one person appointed by the Coöperative Union, one by the Association of British Chambers of Commerce, and one by the National Confederation of Employers' Organizations. If the Negotiating Committee fails to settle a dispute, it must be referred to the Wages Board. There is also provision for the establishment of councils within the Board's undertaking, consisting of officers of the Board and representatives of the employees. The functions and constitution of these bodies are not laid down, but no doubt the intention is that they shall resemble works councils.

Clearly, the main provisions of this part of the Act stand foursquare upon the recognition of trade unionism. A very noteworthy omission from the Act, however, is the name of the Transport and General Workers' Union. This union has a distinct preference for non-statutory negotiating machinery, which it considers to be more flexible and therefore more suited to the varying conditions under which its members are employed; whereas the railway unions have no such preference and have, indeed, participated for more than a decade in the statutory scheme for the settlement of industrial disputes set up by the Railways Act of 1921. In inter-union discussion of the London Passenger Transport Bill it was agreed that the respective unions should be free to follow their own lines; so that it appears that by no means all of the employees of the London Passenger Transport Board will be covered by the machinery described in the preceding paragraph.

The position of the consumer or user of the transport services is safeguarded only indirectly: (a) by the fact that the clear intention of the Legislature is that, altho the Board is expected to pay its way out of its own earnings, the whole undertaking is to be run primarily for service and not primarily for profit; (b) by the fact that the Railway Rates Tribunal has some control over alterations of fares; and (c) by the right given to local authorities to make representations to the Railway Rates Tribunal as to the adequacy of services or any proposed withdrawal or reduction of services within their areas.

It has been argued that under the Act in its final form there will not be sufficient parliamentary control over the general conduct of the undertaking. Altho it is true that Parliament always has power substantially to amend the Act, or to dissolve the Board and appoint another by a different method, or to transfer or lease the whole undertaking to one or more private companies, it is in fact very unlikely to do anything of the kind. So long as the present Act is in force the interposition of "this curious body of Appointing Trustees" has given the London Passenger Transport Board even greater immunity from parliamentary control than the Central Electricity Board and the British Broadcasting Corporation. But, on the other hand, it may be said that the appointment of the members of the Board is not the only channel through which parliamentary surveillance and control can be exercised. A close examination of the Act illustrates this point. As it stands, the Minister of Transport has power (a) to remove any members of the Board for incompetence or misbehaviour; (b) to consult with, and act upon the advice of, the Advisory Committee; (c) to make regulations as to how the Board shall give public notice of proposed alterations of fares. (As we have seen, Parliament has delegated the control of fares to the Railway Rates Tribunal.) Moreover, the Board must make an annual report to the Minister of Transport, "and such report shall be laid before both Houses of Parliament and shall be on sale at a

reasonable charge to the public at the offices of the Board"; and the Board must furnish to the Minister "such financial and statistical returns as may be agreed between the Minister and the Board or, in default of agreement, as may be determined by the rates tribunal," and an annual statement of accounts in a form prescribed by the Minister and audited by auditors approved by him.

ALFRED PLUMMER.

RUSKIN COLLEGE,
OXFORD.

AN EXPLANATION

The following statement received from Mr. A. C. Collins, who was editor of the *World's Work* before its merger with the *Review of Reviews*, explains itself.

"The issue of *World's Work* for May, 1932, contained an unsigned article entitled 'Yellow Dog on the Run.' This article included certain passages closely resembling both in content and in form portions of an earlier article by Joel I. Seidman, entitled 'The Yellow Dog Contract,' which had appeared in the *Quarterly Journal of Economics* for February, 1932.

At the time of the issue in question the *World's Work* was published by Messrs. Doubleday, Doran & Company, who have authorized me to express their regret that acknowledgment was not made of the article in the *Quarterly Journal of Economics* as one of the sources of the material for the article in *World's Work*."

CORRIGENDA TO VOLUME XLVII

Page 644, line 18: for "labor" read "capital."

Page 655, note: for "Snyder" read "Snider."

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